

SHARP®

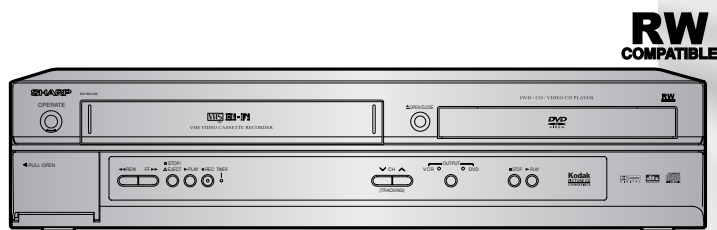
VCR/DVD COMBINATION

MODEL

DV-NC100(RU)

OPERATION MANUAL

Please read this Operation Manual carefully before using your VCR/DVD COMBINATION.



The region number for this VCR/DVD is 5.



SAFETY INFORMATION

NOTE:

This VCR/DVD can be used only where the power supply is AC 220V-240V, 50Hz. It cannot be used elsewhere.

CAUTION:

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

AS THE LASER BEAM USED IN THIS VCR/DVD IS HARMFUL TO THE EYES, DO NOT ATTEMPT TO DISASSEMBLE THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPARATUS TO DRIPPING OR SPLASHING, NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD BE PLACED ON THE APPARATUS.

Laser Diode Properties

Material: GaAs

Wave length: DVD: 655 nm

CD: 790 nm

Emission Duration: Continuous

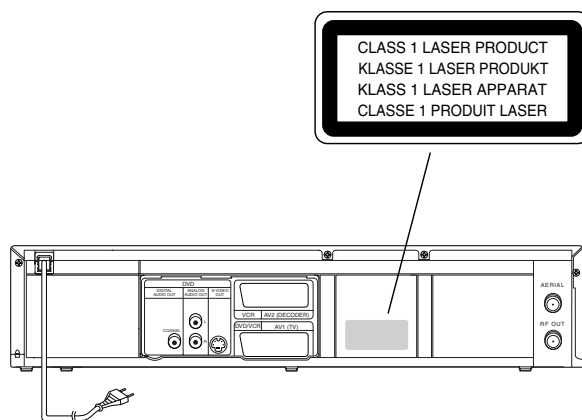
Laser output: Max. 0.8 mW

Power Cord Protection

To avoid any malfunctions of the VCR/DVD, and to protect against electric shock, fire or personal injury, please observe the following.

- Hold the plug firmly when connecting or disconnecting the AC power cord.
- Keep the AC power cord away from heating appliances.
- Never put any heavy object on the AC power cord.
- Do not attempt to repair or reconstruct the AC power cord in any way.

- This VCR/DVD is classified as a CLASS 1 LASER product.
- The CLASS 1 LASER PRODUCT marking is embossed on the rear cover.
- This product contains a low power laser device. To ensure continued safety, do not remove any cover or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.



Location and Handling

- Do not cover or place the VCR/DVD in enclosed spaces to prevent excessive temperature build up.
- Do not place the VCR/DVD in direct sunlight, or near heat sources.
- Keep the VCR/DVD away from strong magnetic objects.
- Do not place any object containing water or other liquids on the VCR/DVD. In the event that liquid should enter the cabinet, unplug the VCR/DVD immediately and contact the retailer or service centre approved by SHARP immediately.
- Do not remove the VCR/DVD cabinet. Touching parts inside the cabinet could result in electric shock and/ or damage to the VCR/DVD. For service and adjustment inside the cabinet, call a qualified dealer or service centre approved by SHARP.
- Depending on the use environment, the temperature of the VCR/DVD may increase slightly. **This is not a malfunction.**

Nonuse Periods

When the VCR/DVD is not being used, switch the VCR/DVD to the Standby mode.

When left unused for a long period of time, the VCR/DVD should be unplugged from the household AC outlet.

No Fingers or Other Objects Inside

Do not put your fingers or objects on the disc tray or the cassette compartment.

Stacking

Place the VCR/DVD in a horizontal position, and do not place anything heavy on it.

Condensation

Moisture may form inside the VCR/DVD under the following conditions:

- immediately after a heater has been turned on.
- in a steamy or very humid room.
- when the VCR/DVD is suddenly moved from a cold environment to a warm one.

If moisture forms inside this VCR/DVD, it may not operate properly or damage the video cassette. In this case, turn on the power and wait for more than two hours for the moisture to evaporate.

Cleaning

Unplug your VCR/DVD before cleaning. Use a damp cloth for cleaning. Do not use cleaning fluids or aerosols which could enter the VCR/DVD and cause damage, fire, or electrical shock. These substances may also deteriorate the finish of your VCR/DVD.

Auto Head Cleaning

- Automatically cleans video heads as you insert or remove a cassette, so you can see a clear picture.
 - Playback picture may become blurred or interrupted while the TV program reception is clear. Dirt accumulated on the video heads after a long period of use, or the usage of rental or worn tapes can cause this problem. If a streaky or snowy picture appears during playback, the video heads in your VCR/DVD may need to be cleaned.
1. Please visit your local Audio/Video store and purchase a good quality VHS Video Head Cleaner.
 2. If a Video Head Cleaner does not solve the problem, please refer any service to the nearest service centre approved by SHARP.

NOTES:

- Remember to read the instructions along with the video head cleaner before use.
- Clean video heads only when problems occur.

If there is Noise Interference on the TV While a Broadcast is being Received

Depending on the reception condition of the TV, interference may appear on the TV monitor while you watch a TV broadcast and the VCR/DVD is left on. This is not a malfunction of the VCR/DVD or the TV. To watch a TV broadcast, turn off the VCR/DVD.

Service

Do not attempt to service this VCR/DVD yourself. Please refer any service to the nearest service centre approved by SHARP.

Copyright

Audio-visual material may consist of copyrighted works which must not be recorded without the authority of the owner of the copyright. Please refer to relevant laws in your country.

Copy Protection

This VCR/DVD supports Macrovision copy protection. On DVDs that include a copy protection code, if the contents of the DVD are copied using a VCR, the copy protection code prevents the videotape copy from playing normally.

Apparatus Claims of U.S. Patent Nos. 4,631,603, 4,577,216, 4,819,098 and 4,907,093 licensed for limited viewing uses only.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorised by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorised by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Recommended Measures for Optimum Picture Excellence

The VCR/DVD is a precision device that is constructed using extremely accurate technology. Soiling or friction affecting the pickup lens or disc drive can impair the image quality. At the worst, neither video nor audio will be played back. Contact your authorised Sharp supplier for details.

Do not attempt to clean the pickup lens yourself.

FEATURES

DVD

- **Dolby Digital sound**

This VCR/DVD can handle Dolby Digital surround sound having 5.1 channels when connected to a Dolby Digital decoder.

- **Still/fast/slow/step playback**

- **Rapid Play**

Playback in slightly faster/ slower speed while keeping the sound quality as in the normal playback.

Rapid Play is available only on discs recorded in the Dolby Digital format.

- **Random playback for audio CD, MP3, JPEG and Kodak Picture CD**

- **Programme playback for audio CD, MP3, JPEG and Kodak Picture CD**

- **DVD menus in a desired language**

- **Screen saver**

The screen saver programme starts when there is no input from the VCR/DVD for 5 minutes in the stop mode.

- **Subtitles in a desired language**

- **Selecting a camera angle**

- **Choices for audio language and sound mode**

- **Parental lock**

- **Automatic detection of discs**

This VCR/DVD automatically detects if a loaded disc is DVD, audio CD, video CD, MP3 and JPEG on disc, or Kodak Picture CD.

- **Playing an MP3 disc**

- **Displaying a JPEG picture**

Kodak Picture CDs can be played. Still images stored in JPEG format on CD-RW/R can also be played.

- **Direct Search**

- **DTS (Digital Theater System)**

You can enjoy 5.1 channel surround sound system developed by Digital Theater System, Inc. which reproduces the original sound as truthfully as possible.

External decoder is required.

- **On-screen display**

Information about the current operation can be displayed on a TV screen, allowing you to confirm the currently active functions (such as programme playback), on the TV screen using the remote control.

- **MPEG audio**

This VCR/DVD can handle a disc that supports MPEG audio when it is connected to a MPEG decoder.

- **Search**

Chapter search / Title search / Track search / Time search

- **Repeat**

Chapter / Title / Track / Group / All / A-B

- **Zoom**

- **Marker**

The part designated by user can be called back.

- **Resume Play**

- **Virtual Surround**

- **Bit rate indication**

- **DRC (Dynamic range control)**

You can control the range of sound volume.

- **Digital Gamma Setting**

- **Video Out**

When playing an NTSC disc, select either PAL or AUTO (NTSC) correspondingly to your TV system.

VCR

- **Auto Head Cleaner**

- **4 Head Hi-Fi Stereo**

- **On screen Display**

- **Auto power on system**

Automatically turns the VCR on when you insert the cassette.

- **Digital Auto Tracking (DTR)**

- **Auto Repeat**

- **Index Search**

- **Time Search**

- **Quick-Find**

- **NTSC Playback**

- **1 year, 8 events (including Daily and Weekly Timer Recording)**

- **OTR (One Touch Recording)**

“Kodak Picture CD COMPATIBLE” is a trademark of Eastman Kodak Company.

INTRODUCTION

Symbols Used in this Manual

The following symbols appear below in some headings and notes in this manual, with the following meanings!

DVD

: Description refers to playback of DVD video discs. (including DVD-RW/R and DVD+RW/R discs (Video mode only))

CD

: Description refers to playback of audio CDs.

VCD

VCD

without PBC function

: Description refers to playback of video CDs.

MP3

: Description refers to playback of MP3 discs.

DVD-RW

VR mode

: Description refers to playback of the VR mode (Video Recording format).

*The VR mode (Video Recording format) is a recording mode to enjoy editing the programme or “manual mode” for recording in desired resolution and time.

JPEG

: Description refers to viewing of JPEG discs.

⏏ (QUICK)

: Basic setup can be performed more quickly by selecting

⏏ (QUICK setup menu).

INTRODUCTION

Supplied Accessories

- Remote control
- Two R-6 batteries
- Operation Manual
- Round coaxial cable
- Audio cable
- Video cable
- SCART output adaptor

Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

"DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

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Playable Discs

The following discs can be played back on this VCR/DVD.

- DVD video • DVD-RW/R* • DVD+RW/R* • Audio CD • CD-RW/R* • MP3* • Video CD • JPEG*
- Kodak Picture CD

* Depending on the types or the writing method of the medium some discs cannot be played.

For DVD+RW/R, only discs recorded in the Video mode can be played back.

- Some DVD-RW/R, DVD+RW/R or CD-RW/R discs made on personal computers, or on DVD recorders may not be played back properly due to the factors such as scratches, dirt or special properties of the disc.
- Discs made on personal computers may not playback properly due to compatibility or settings in the recording software. We recommend always to use the standard settings and correctly formatted discs. (Please contact the software supplier for more details.)
- You can play back discs which bear the marks on page 31. If you use nonstandardized discs, this unit may not play them back. Even if they are played back, the sound or video quality will be compromised.
- This VCR/DVD cannot record a copy protected DVD and CD !

This VCR/DVD conforms to the PAL colour system. Also you can play discs recorded with the NTSC system via a PAL system TV set.

- Some discs include region codes as shown below.



- The number inside the symbol refers to a region of the world, and a disc encoded in a specific region format can only be played back on DVD players with the same region code.



: This label indicates playback compatibility with DVD-RW discs recorded in VR mode (Video Recording Format).

NOTE

- This VCR/DVD cannot play the DVD-RW that supports CPRM (Contents Protection for Recordable Media).

ABOUT THE PBC FUNCTION OF VIDEO CD

This unit conforms to ver.1.1 and ver.2.0 of VIDEO CD standard, with PBC function.

Ver.1.1 (without PBC function): You can enjoy playback picture as well as music CD.

Ver.2.0 (with PBC function): When using a VIDEO CD with PBC function, "PBC" appears on the display.

What is PBC? "PBC" stands for the PlayBack Control. You can play interactive software using a menu screens. Refer to instructions of VIDEO CD.

For Customer Use:

Read carefully the information located at the bottom of your VCR/DVD and enter below the Serial No. Retain this information for future reference.

Model No.: VCR/DVD COMBINATION: DV-NC100(RU)

Serial No.: _____

The following discs cannot be played back on this VCR/DVD:

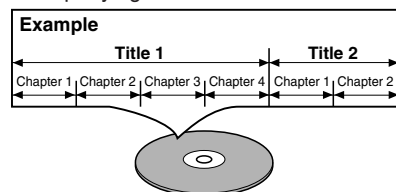
- DVD with region codes other than 5 or ALL. • DVD-ROM
- DVD-RAM (Never play back, otherwise malfunction may result.)
- CD-ROM • CDV (Only plays back the audio part.) • DTS-CD
- CD-G (Only plays back the sound.) • CD-I (Never play back, otherwise malfunction may result.)
- Super Audio CD (Only the sound recorded on the normal CD layer can be delivered. The sound recorded on the high density Super Audio CD layer cannot be delivered.)
- Photo CD (Never play back, otherwise malfunction may result.)

Any other discs without compatibility indications.

Disc Types

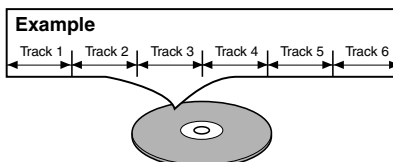
[DVD]

Data on a DVD is divided into sections called "titles", and then into subsections called "chapters", each of which is given a title or chapter number. Playback conditions are preset on some DVD video discs, and these playback conditions take priority over user operations on this VCR/DVD. If a function you selected do not run as desired, refer to the manual accompanying the disc.



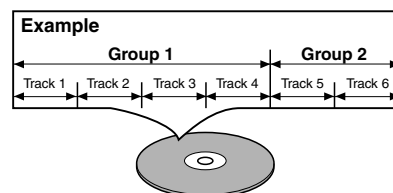
[Audio CD / Video CD]

Data on an audio CD or a video CD is divided into sections called "tracks", each of which is given a track number.



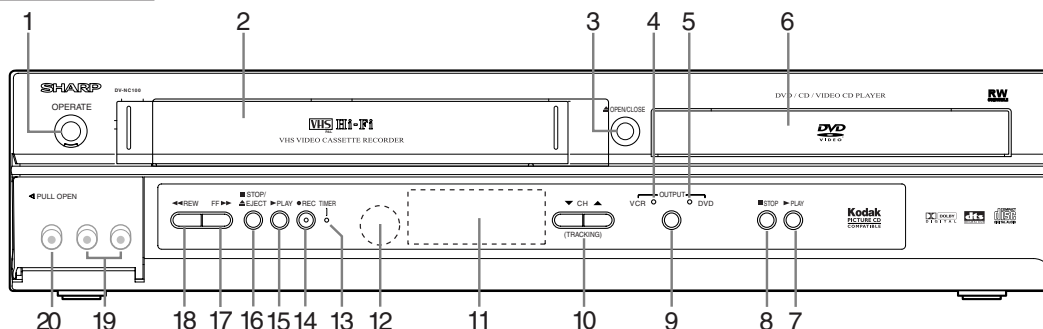
[MP3/JPEG]

Data on an MP3 and JPEG discs are divided into sections called "groups", and then into subsections called "tracks", each of which is given a group or track number.



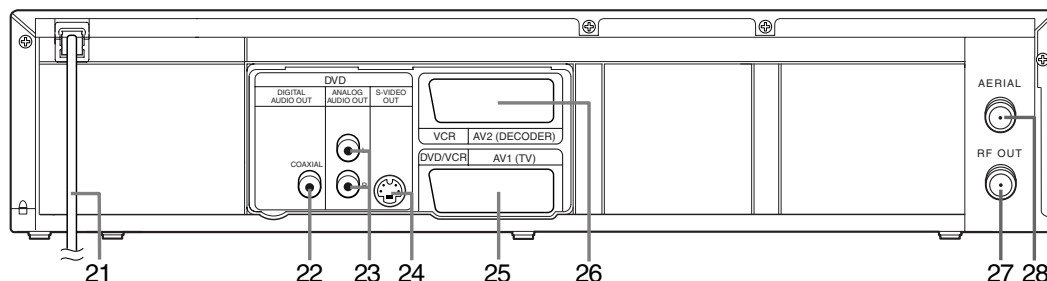
FUNCTIONAL OVERVIEW

FRONT PANEL



- 1. OPERATE**
To turn the unit ON or OFF.
The indicator is on when this unit is turned on.
- 2. Cassette Compartment**
- 3. OPEN/CLOSE (DVD)**
To open or close the disc tray.
- 4. VCR OUTPUT indicator**
The indicator is on when this unit is in the VCR mode. Make sure that this indicator is on before VCR operation.
- 5. DVD OUTPUT indicator**
The indicator is on when this unit is in the DVD mode. Make sure that this indicator is on before using the DVD player.
- 6. Disc tray**
- 7. PLAY (DVD)**
To begin disc playback.
- 8. STOP (DVD)**
To stop playback.
- 9. OUTPUT**
To select the DVD mode or VCR mode.
- 10. CHANNEL**
To change TV channels.
To adjust the tracking manually during VCR playback
- 11. Display**
- 12. Remote Sensor**
- 13. TIMER indicator**
The indicator is on when the VCR/DVD is in standby mode for a timer recording or during a One Touch Recording.
- 14. REC (VCR)**
Press once to start recording or repeatedly to start One Touch Recording.
The indicator is on during recording.
- 15. PLAY (VCR)**
To begin tape playback
- 16. STOP/EJECT (VCR)**
To stop playback.
To eject the tape in the Stop mode.
- 17. FF (VCR)**
To fast forward the tape.
- 18. REW (VCR)**
To rewind the tape.
- 19. AUDIO IN AV3 jacks (VCR Only)**
Connect audio cables coming from the audio out jacks of a camcorder, another VCR, or an audio source here.
- 20. VIDEO IN AV3 jack (VCR Only)**
Connect a cable coming from the video out jack of a camcorder, another VCR or an audio-visual source (laser disc player, video disc player, etc.) here..

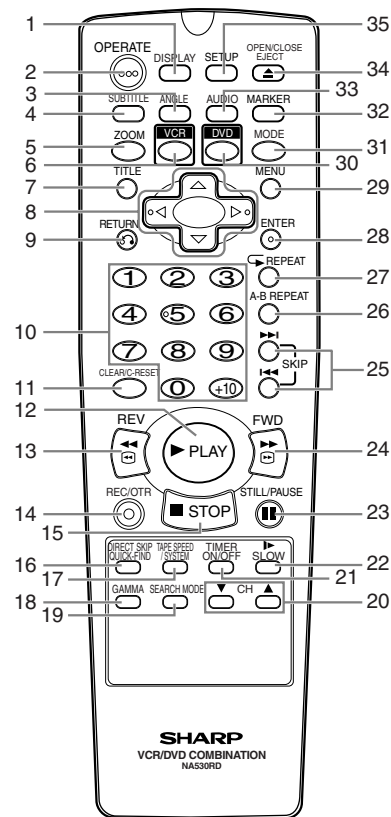
REAR VIEW



- 21. MAIN (AC power cord)**
Connect to a standard AC plug.
- 22. COAXIAL DIGITAL AUDIO OUT jack (DVD Only)**
Connect to a compatible Dolby Digital receiver. Use to connect to a Dolby Digital decoder, DTS decoder, or MPEG decoder.
- 23. AUDIO OUT jacks (ANALOG Left/Right) (DVD Only)**
Connect to the Audio input jacks of A/V-compatible TV
- 24. S-VIDEO OUT jack (DVD Only)**
Use the S-Video cable to connect this jack to the S-Video jack on your A/V-compatible TV or wide screen TV for a higher quality picture.
- 25. EURO AV1 (TV) OUT terminal**
Use the scart cable to connect this terminal to the 21-pin scart terminal on your A/V-compatible TV or wide screen TV for a best quality picture.
If your TV has RCA type audio and video input jacks, you may connect to this terminal through the SCART output adaptor (supplied).
- 26. EURO AV2 (DECODER) terminal (VCR Only)**
Use the scart cable to connect this terminal to the 21-pin scart terminal on your decoder.
- 27. RF OUT jack**
Use the supplied round coaxial cable to connect this jack to the ANTENNA IN jack on your TV.
- 28. AERIAL jack**
Connect your antenna, Cable Box, or Direct Broadcast System.

REMOTE CONTROL

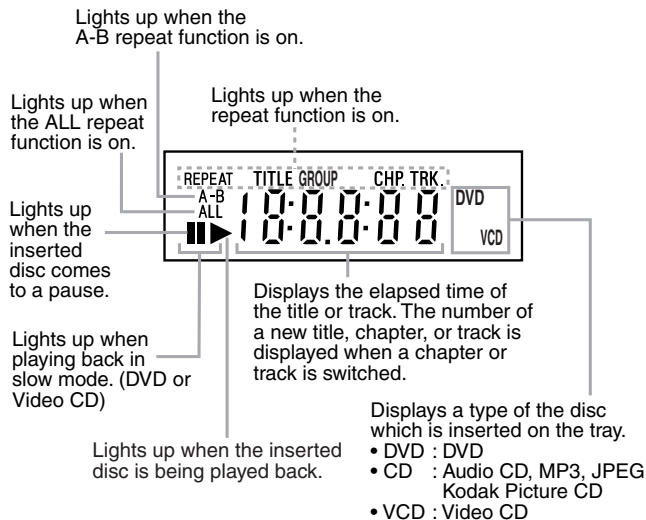
- 1. DISPLAY Button**
 - Press to display the current playback mode.(DVD)
 - Press to display the current time, tape counter and channel number.(VCR)
- 2. OPERATE Button**
Press to turn the power on and off.
- 3. ANGLE Button**
Press to change the camera angle to see the sequence being played back from a different angle.(DVD)
- 4. SUBTITLE Button**
Press to select a desired subtitle language or to change the Panel Display settings. (DVD)
- 5. ZOOM Button**
Enlarges part of a DVD-reproduced image.
- 6. VCR Button**
Press to select VCR output mode and to use the remote control in VCR mode.
- 7. TITLE Button**
Displays the title menu.
- 8. ARROW Buttons (▲▼◀▶)**
(up/down/left/right) Press to select an item in the menu and to move the cursor.
- 9. RETURN Button**
Returns to the previous operation. (DVD)
- 10. Numerical Buttons**
- 11. CLEAR/C-RESET Button**
 - Press to clear the markers or the incorrect input. (DVD)
 - Press to reset the counter. (VCR)
- 12. PLAY Button**
Press to begin playback.
- 13. REV Button**
Fast reverse playback to a desired point.
- 14. REC/OTR Button**
Press once to start recording or repeatedly to start One-Touch Recording. (VCR)
- 15. STOP Button**
 - Press to stop playback. (DVD)
 - Press to stop playback or recording. (VCR)
- 16. DIRECT SKIP/QUICK-FIND Button**
 - Press to locate a desired point. (DVD)
 - Press to skip to the beginning of the next programme. (VCR)
- 17. TAPE SPEED/SYSTEM Button**
Press to select the VCR's recording speed. (SP or LP)
To change the VCR system for matching recorded system. (PAL or MESECAM)
- 18. GAMMA Button**
Press to adjust the black parts of the picture brighter. (DVD)
- 19. SEARCH MODE Button**
Press to call up the index or time search menu. (VCR)
- 20. CH (▲/▼) Button**
Press to change TV channels or to adjust the tracking manual on the VCR.
- 21. TIMER ON/OFF Button**
Press to put the VCR into standby mode for a timer recording.
- 22. SLOW Button**
Press to view the video tape in slow motion.
- 23. STILL/PAUSE Button**
 - Press to pause playback or to advance playback one frame at a time. (DVD)
 - Press to pause playback or recording or to advance playback one frame at a time (VCR)



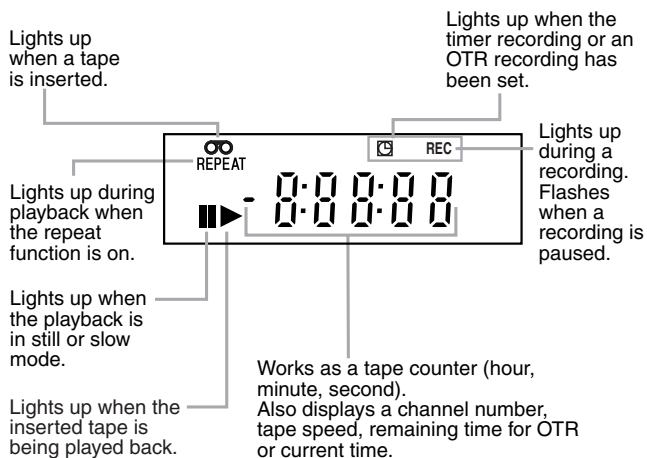
- 24. FWD Button**
Fast forwards playback to a desired point.
- 25. SKIP (▶▶ / ◀◀) Buttons**
Press to skip Chapters or Tracks. (DVD)
- 26. A-B REPEAT Button**
Repeats playback of a selected section. (DVD)
- 27. REPEAT Button**
Repeats playback of the current disc, title, chapter or track. (DVD)
- 28. ENTER Button**
Press to accept a setting. (DVD)
- 29. MENU Button**
 - Press to display the DVD menus and MP3 file lists. (DVD)
 - Press to display the VCR menu. (VCR)
- 30. DVD Button**
Press to select DVD output mode and to use the remote control in DVD mode
- 31. MODE Button**
 - Activates programme playback or random playback mode. (CD/ MP3/ JPEG)
 - Activates the 3D sound or Rapid Play. (DVD)
- 32. MARKER Button**
Press to call back the Marker display. (DVD)
- 33. AUDIO Button**
 - Press to select a desired audio language or sound mode. (DVD)
 - Press to select a desired sound mode. (VCR)
- 34. OPEN/CLOSE/EJECT Button**
 - Press to insert discs into or remove them from the tray. (DVD)
 - Press to remove the tape from the VCR. (VCR)
- 35. SETUP Button**
Press to enter the setup mode or to change setup items. (DVD)

Display

DVD



VCR



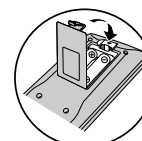
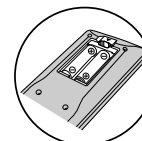
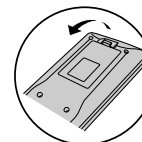
Displays During Operation

DVD

	No disc inserted or cannot read
	Tray open
	Tray closed
	Loading the Disc
	Lights up when the playback control is activated.

Loading the Batteries

1. Open the battery compartment cover.
2. Insert two R-6 batteries, with each one oriented correctly.
3. Close the cover.



NOTES:

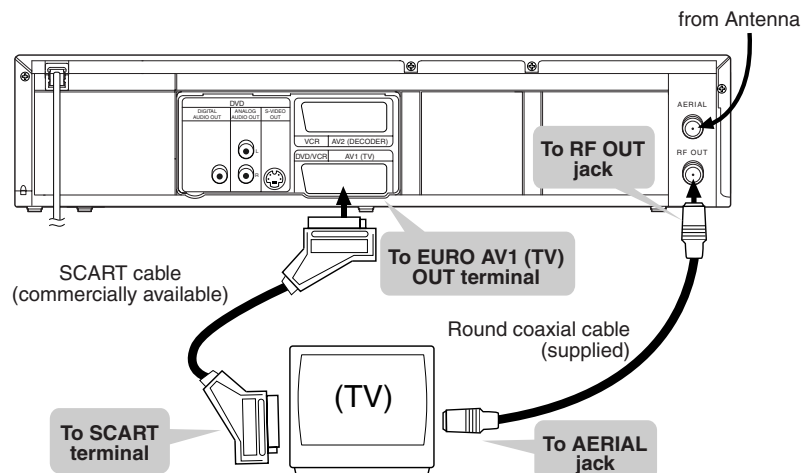
- Do not mix alkaline and manganese batteries.
- Do not mix old and new batteries.

SETTING UP YOUR VCR/DVD COMBINATION

CAUTION:

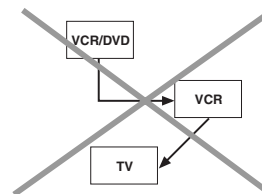
- Be sure to turn off the VCR/DVD and equipment to be connected before connecting.
- Read through the operation manual for the equipment to be connected.
- Be sure to keep the VCR/DVD connection cables separate from the TV antenna cable when you install the VCR/DVD, because it may cause electrical interference when you are watching television programmes.
- DTS audio cannot be produced with an analogue connection.

Connecting to a TV or a stereo TV



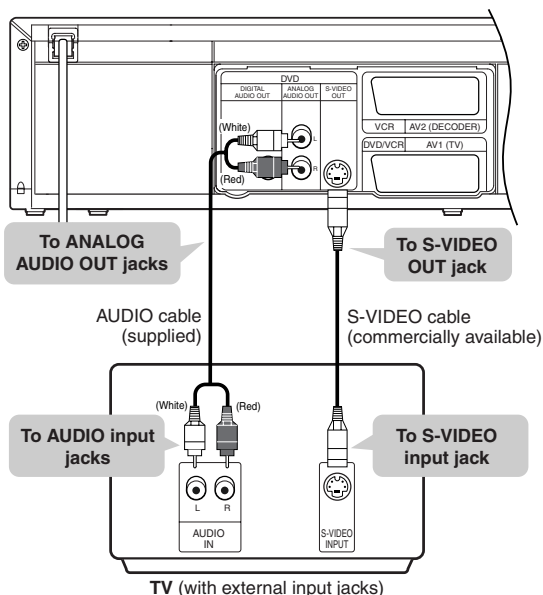
CAUTION:

- Connect the VCR/DVD directly to the TV. Do not connect the VCR/DVD to a VCR, then connect the VCR to the TV. Copyright protection in the VCR could distort the picture playing on the VCR/DVD.



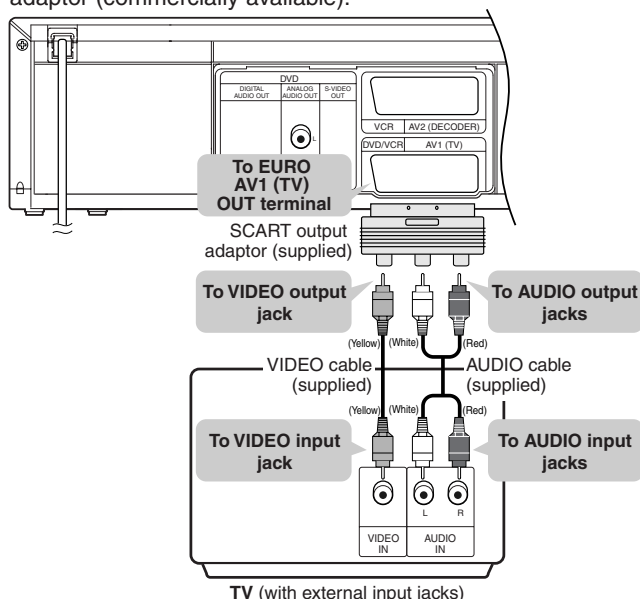
Connecting to a TV Equipped with S-VIDEO Input Jack (DVD only)

If your TV has no SCART input jack but has an S-VIDEO input jack, use a commercially available S-VIDEO cable to connect from the VCR/DVD to the TV. You will still need the SCART cable or Round coaxial cable for VCR features. (S-VIDEO connection is available only in DVD mode.)



Connecting to a TV Equipped with RCA type Input Jack

If your TV has RCA type audio and video input jacks, you may connect to EURO AV1 (TV) OUT terminal through the SCART output adaptor (supplied). When using this connection, do not connect a decoder to the EURO AV2 (DECODER) terminal of your VCR/DVD. Other equipment, such as a VCR or camcorder, can be connected to EURO AV2 (DECODER) terminal. If the connected equipment has RCA type audio and video input jacks, use a SCART input adaptor (commercially available).



- You will not be able to hear all of the sound being output by the VCR/DVD if you use the AUDIO cable (supplied) to a monaural TV that has only one AUDIO input jack.

NOTES:

- Be sure that the colours of the jacks and plugs match up when connecting the cable.
- Connect the VCR/DVD directly to the TV. If you attempt to view video on a TV connected via a VCR, the copy protection function will scramble the picture.

If you want to listen to the audio through audio equipment, connect only the S-VIDEO or VIDEO cable to the TV.

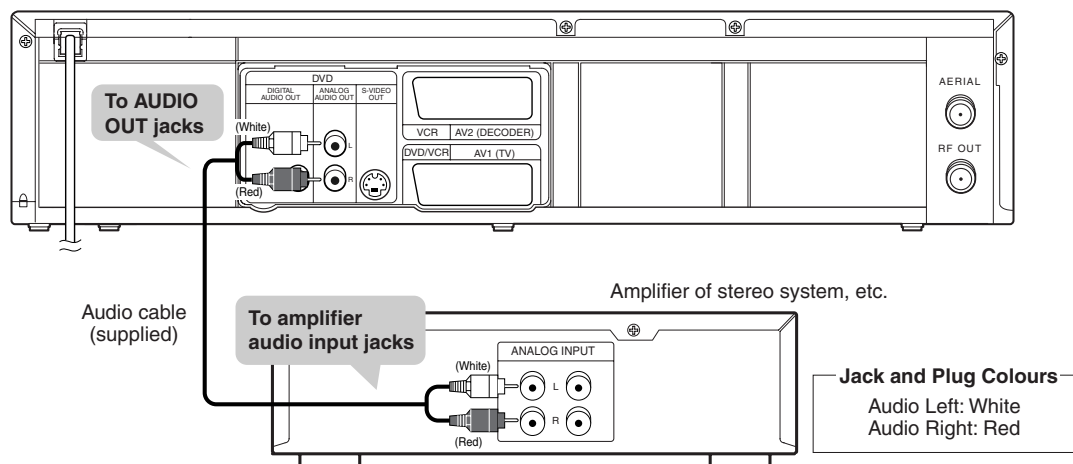
SETTING UP YOUR VCR/DVD COMBINATION

Connecting to Audio Equipment

Connecting the VCR/DVD to audio equipment provides normal stereo sound, plus powerful stereo sound enhanced by Dolby Digital 5.1 channel surround sound, DTS and MPEG Audio.

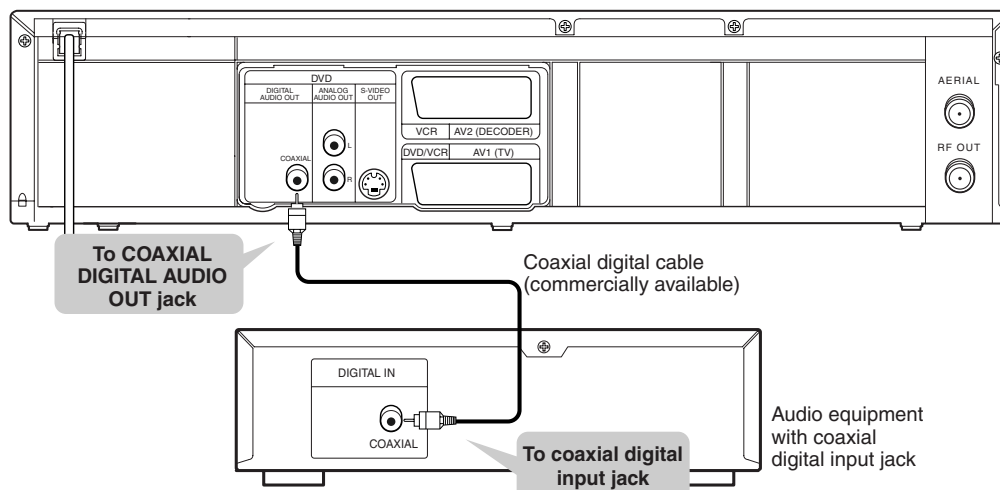
Playing 2 channel audio

■ Analogue audio connection



■ Digital audio connection

You can make this connection using a coaxial digital cable.



Digital Connection to an MD to Record a CD

Some Audio CDs have a short silent section between musical tracks. When sound from discs such as these is digitally recorded by connecting the VCR/DVD directly to a digital recorder (such as an MD recorder), the music may be recorded continuously and track numbers may be lost.

■ Digital Connection to Audio Equipment or MD Recorder without a Dolby Digital Decoder

• Audio CD

Audio CDs can be transferred digitally to other equipment such as an MD recorder, play the disc as you would normally with the audio mode set to "L+R" and use the connection shown above. Audio CDs recorded in the DTS format cannot be transferred digitally or via analogue.

• DVD

DVDs recorded in Dolby Digital 5.1 channel surround sound, DTS or MPEG Audio cannot be connected digitally to external recording equipment such as an MD recorder.

The audio source on a disc in a Dolby Digital 5.1 channel surround format cannot be recorded as digital sound by an MD recorder.

It may be possible to record "DOLBY DIGITAL" or MPEG Audio via a digital connection if the VCR/DVD output is set to "DPCM" (Refer to page 27 "Audio Setting"). Analogue recording is possible, but not for DTS recorded audio.

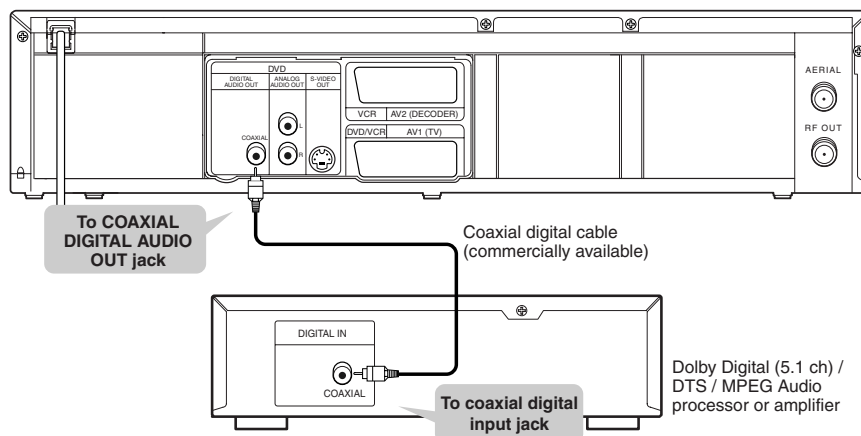
SETTING UP YOUR VCR/DVD COMBINATION

Playing Dolby Digital (5.1 channel), DTS or MPEG audio

Connecting an amplifier with a Dolby Digital, DTS, or MPEG Audio digital surround processor to your VCR/DVD's coaxial digital jack provides richer and more powerful audio play.

■ Digital connection to a processor or amplifier with a coaxial digital input jack

You can make this connection using a coaxial digital cable.



NOTE:

- This connection is not possible if the processor or amplifier to which you want to connect does not have a coaxial digital input jack.
- ANALOG AUDIO OUT and AV (TV) of the VCR/DVD are not available on the DTS audio.

VCR/DVD SET UP

Turning on Your VCR/DVD

The following steps should only be performed if there is a power failure or if this unit is unplugged for more than 1 hour.

- 1 Turn on the TV and select the video channel on the TV.
- 2 Press **OPERATE**, then **VCR**.
- 3 Press **▲** or **▼** repeatedly to select your desired language.
- 4 Press **MENU**.

Changing the Language

- 1 Press **VCR**, then **MENU**.
- 2 Press **▲** or **▼** to select **INITIAL**, then press **▶**.
- 3 Press **▲** or **▼** to select **LANGUAGE**, then press **▶**.
- 4 Press **▲** or **▼** repeatedly to select your desired language, and **MENU** to confirm.

Video Channel Setting

Video Channel setting will be necessary, if your VCR/DVD is connected to the TV via the round coaxial cable.

- 1 Press **VCR**.
- 2 Insert a pre-recorded tape into the Cassette compartment.
Playback will start automatically.
If playback does not start, press **PLAY**.
- 3 Select and adjust your TV to channel 36.
 - If the playback picture appears on the TV screen, continue with step **10**.
 - If channel 36 is set for broadcasting, or interference lines appear on the picture, the RF converter must be set to a different channel between CH22 and CH69.
Continue with step **4**.
- 4 Press **MENU**.

- 5 Press **▲** or **▼** repeatedly to select **INITIAL**, then press **▶**.
- 6 Press **▲** or **▼** repeatedly to select **RF OUT**, then press **▶**.
The **RF OUT CH** menu will appear.
- 7 Press **▲** or **▼** to select a channel which is not used for broadcasted between channel 22 and channel 69 in your area, and **▶** to confirm.
- 8 Press **TAPESPEED/SYSTEM** to select **G** or **K** according to your TV's setting for clearer sound.
- 9 Press **MENU** to exit.
Set the TV channel to the **RF OUT CHANNEL** which was selected on the VCR/DVD. A picture from the VCR/DVD will appear on the TV screen. If a picture does not appear, repeat steps **4** to **9** using a different channel which is not used for broadcasting.
- 10 Press **STOP** to stop the tape.

NOTES:

- You may also access the **RF OUT CH** menu by pressing and holding **MENU** on the remote control for 3 seconds during power off until the **RF OUT CH** menu appears.
- If this unit and your TV are connected using a SCART cable, the RF converter may be switched off to avoid any possibility of interference. To switch off the RF converter, follow steps **1** and **4** to **6** above and press **▼** repeatedly until "--" appears next to "RF OUT CH". Press **▶**, then press **MENU** to exit.

Setting the Clock

This VCR/DVD incorporates a 24-hour clock. The clock must be set for the Timer Recording function to operate correctly.

- 1 Press **VCR**, then **MENU**.
- 2 Press \blacktriangle or \blacktriangledown to select **INITIAL**, then press \blacktriangleright .
- 3 Press \blacktriangle or \blacktriangledown to select **CLOCK**, then press \blacktriangleright .
- 4 Press \blacktriangle or \blacktriangledown until the relevant year appears, then press \blacktriangleright .
- 5 Press \blacktriangle or \blacktriangledown until the relevant month appears, then press \blacktriangleright .
- 6 Press \blacktriangle or \blacktriangledown until the relevant day appears, then press \blacktriangleright .
- 7 Press \blacktriangle or \blacktriangledown until the relevant hour appears, then press \blacktriangleright .
- 8 Press \blacktriangle or \blacktriangledown until the relevant minute appears.
- 9 Press **MENU** to start the clock.

NOTES:

- Press \blacktriangleleft to go one step back from the current step during steps 4 to 8.
- Although seconds are not displayed, they begin counting from 00 when you exit by pressing the **MENU**. Use this feature to synchronise the clock with the correct time.
- If this unit is unplugged or if there is a power failure for more than 1 hour, you may have to reset the clock.

Channel Presetting

Tuning of broadcast channels not already preset in the VCR/DVD can be performed in two ways.

Automatic Channel Preset

- By "AUTOMATICALLY" tuning channels and placing them in sequential order in the VCR/DVD's memory i.e. the first channel found will be memorised into the VCR/DVD's channel position 1, the second channel found will be memorised into the VCR/DVD's channel position 2 and so on.
- Execution of the "Automatic" Channel presetting cancels all the preset channels. DO NOT use this feature if you intend to use some of the pre-tuned channels. Use the "Manual" channel presetting function to tune in the additional channels you require.

Manual Channel Preset

Each channel is tuned manually and individually. Follow the steps laid out in the "Manual Channel Preset".

Before you preset Channel...

- It is necessary to set the video channel if your VCR/DVD is connected to the TV via the round coaxial cable, and TV channel 36 is set for broadcasting, or interference lines appear on the picture. Please refer to "Video Channel Setting".

Automatic Channel Preset

You can programme the tuner to scan all the channels you can receive in your area.

- 1 Turn on the TV and select the TV channel to the video channel on the TV.
- 2 Press **VCR**, then **MENU**.
- 3 Press \blacktriangle or \blacktriangledown to select **INITIAL**, then press \blacktriangleright .
- 4 Press \blacktriangle or \blacktriangledown to select **CH TUNING**, then press \blacktriangleright .
- 5 Press \blacktriangle or \blacktriangledown to select **AUTO**, then press \blacktriangleright .
 - The tuner scans and memorises all the active channels in your area. After scanning, the tuner stops on the lowest memorised channel.

To select a desired channel

You can select a desired channel by using **CH** ($\blacktriangle/\blacktriangledown$), or directly pressing the **numerical buttons** on the remote control.

- Enter a channel numbers as a two-digit number for the quickest results. For example, to select channel 6, press **0** and **6**. If you only press **6**, channel 6 will be selected after a brief delay.
- You can only select channels 1–99.

Manual Channel Preset

- 1 Press **VCR**, then **MENU**.
- 2 Press \blacktriangle or \blacktriangledown to select **INITIAL**, then press \blacktriangleright .
- 3 Press \blacktriangle or \blacktriangledown to select **CH TUNING**, then press \blacktriangleright .
- 4 Press \blacktriangle or \blacktriangledown to select **MANUAL**, then press \blacktriangleright .
- 5 Press \blacktriangle or \blacktriangledown to select **POSITION**, then press \blacktriangleright .
 - When a weak signal is received in Manual Tuning mode, you can change the background to solid blue or the static screen by pressing the **CLEAR/C-RESET**.
- 6 Press the **numerical buttons**, \blacktriangle or \blacktriangledown to select your desired position number, then press \blacktriangleright .
 - You can select position number 01-99.
 - If **ON** appears on the right side of **SKIP**, press \blacktriangle or \blacktriangledown to point to **SKIP**. Then press \blacktriangleright to select **OFF**.
 - If you want to change the video mode, press \blacktriangle or \blacktriangledown repeatedly to point to **VIDEO MODE**. Then press \blacktriangleright to select your desired mode.
 - If you want to remove scrambled signals, press \blacktriangle or \blacktriangledown repeatedly to point to **DECODER**. Then, press \blacktriangleright to select **ON**.
- 7 Press \blacktriangle or \blacktriangledown to select **CHANNEL**, then press \blacktriangleright . Press \blacktriangle or \blacktriangledown . The VCR/DVD tuner will begin to search up or down automatically. When a channel is found, the VCR/DVD will stop searching and the picture will appear on the TV Screen.
 - You can select desired channel number by using the **numerical buttons**. You must refer to the following Channel Plan table and press three digits to select the channel number. (To select channel 24, first press **0** button and then press **2** and **4**).
 - If this is the channel you want, press \blacktriangleright .
- 8 Press **MENU** to exit.

Channel Plan	
CH Indication	TV Channel
02 – 12	E2 – E12
21 – 69	E21 – E69
74 – 78	X, Y, Z, Z+1, Z+2
80 – 99, 100	S1 – S20, GAP
121 – 141	S21 – S41
142 – 153	R1 – R12

NOTE:

- To confirm that a channel has been added, press **CH** ($\blacktriangle/\blacktriangledown$).

To Skip a Preset Channel

The channels you can no longer receive or seldom watch can be set to be skipped when you access channels with **CH** (▲/▼).

- 1 Press **VCR**, then **MENU**.
- 2 Press ▲ or ▼ to select **INITIAL**, then press ►.
- 3 Press ▲ or ▼ to select **CH TUNING**, then press ►.
- 4 Press ▲ or ▼ to select **MANUAL**, then press ►.
- 5 Press ▲ or ▼ to select **POSITION**, then press ►.
- 6 Press the **numerical buttons**, ▲ or ▼ to select relevant position number, then press ►.
- 7 Press ▲ or ▼ to select **SKIP**, then press ► to select **ON**.
 - To memorise the channel again, press ►. **ON** will change to **OFF**.
- 8 Press **MENU** to exit.

NOTE:

- To confirm that a channel has been deleted, press **CH** (▲/▼).

Channel Reprogramming

You can replace two channels.

- 1 Press **VCR**, then **MENU**.
- 2 Press ▲ or ▼ to select **INITIAL**, then press ►.
- 3 Press ▲ or ▼ to select **CH TUNING**, then press ►.
- 4 Press ▲ or ▼ repeatedly to select **MOVE**, then press ►.
- 5 Press the ▲ or ▼ repeatedly to select the position number you want to change the channel, then press ►.
 - You cannot select a position number where “- - -” appears next to the number. This is because **SKIP** is set to **ON** for this position number.
 - When a weak signal is received in Channel Reprogramming mode, you can change the background to static blue by pressing **CLEAR/C-RESET**. If you press the button again, the background will return to the static screen.
- 6 Press ▲ or ▼ repeatedly until the channel move to another position number, then press ►.
- 7 Press the **MENU**.

VCR OPERATION

VCR Features

Ensure that all VCR setting begins in VCR mode by pressing **VCR**. (Make sure that the VCR OUTPUT indicator is lit.)

Playback

Tracking Adjustment

- Tracking adjustment will be activated automatically (Digital Tracking function) when you start playback.
- When playing pre-recorded tapes or tapes recorded on units other than your own, noise lines (black and white streaks) may appear on the playback picture. If this occurs, you can adjust the tracking control manually by pressing **CH** (▲/▼) until the streaks disappear. To return to the DTR function, stop the tape once and start playback again.
- You can reduce the noise lines by pressing **CH** (▲/▼) in Slow mode, too. Slow tracking adjustment is not set automatically.
- In the Still mode, press **SLOW**, and press **CH** (▲/▼) until the streaks disappear. To return to the Still mode, press the **STILL/PAUSE** again.

- 1 Turn on the TV and select the video channel on the TV.
- 2 Insert a prerecorded tape.

The VCR/DVD will turn on automatically. If the erase-protection tab has been removed, the VCR mode will start playback automatically.

 - If the VCR/DVD power was already on, press **VCR** to switch to VCR mode.
- 3 If playback does not start automatically, press **VCR**, then press **PLAY** to begin playback.
 - Tracking adjustment will be activated automatically (Digital Tracking function) when you start playback. To adjust the tracking manually, press **CH** (▲/▼).
<If a tape is already in the VCR/DVD...>
 - Using the buttons on the VCR/DVD
Just press **PLAY** on the VCR/DVD. Power will automatically turn on and playback will start. (Direct Button Operation)
 - Using the buttons on the remote control
Press **OPERATE** to turn on, and then press **PLAY**.
- 4 Press **STOP** to stop playback.
 - To remove the tape, press **EJECT**.

Playback System Change

When you select **AUTO** by pressing **TAPE SPEED/SYSTEM**, this unit will distinguish the system (MESECAM or PAL) automatically according to the format of recorded tape during playback.

If the picture on the TV screen is black and white, select the system **MESECAM** or **PAL** manually by using **TAPE SPEED/SYSTEM**.

Each time you press **TAPE SPEED/SYSTEM**, TV screen will change “**AUTO**”, “**MESECAM**” or “**PAL**”.

Speed Search

- 1 During playback, press **FWD** ►► or **REV** ◄◄ to view a videotape at a high speed in either a forward or reverse direction. In this mode, the sound will be muted.
- 2 Press the button again, the VCR/DVD will now search in super high speed. (This function will not operate for a NTSC tape.)
- 3 Press **PLAY** to return to normal playback.

Still Picture

Press **STILL/PAUSE** during playback to view a still picture on the TV screen.

- When the picture begins to vibrate vertically, stabilise the picture by pressing the **CH** (▲/▼) in the Still mode.
- After the VCR/DVD has been in Still mode for 5 minutes, it will stop automatically to protect the tape and the video head.

NOTE (for “Speed Search” and “Still Picture”):

- Usually there will be video “noise” lines (black and white streaks or dots) on the screen. This is normal. The still picture will, in addition to containing the “noise” lines, be black and white. This is not a fault of the machine but merely a by-product of the technology involved in producing a VCR with LP mode.

Slow Motion

- Press **SLOW** to reduce the playback speed. The VCR/DVD mutes the sound during slow motion. You can control the speed by pressing **FWD** ►► (faster) or **REV** ◄◄ (slower). Press **PLAY** to return to normal playback.
- If it is left in the Slow mode for more than 5 minutes, the VCR/DVD will automatically switch to the Stop mode.

Recording

Viewing and Recording the Same Programme

- 1** Insert a cassette tape with its erase-prevention tab in place. (If necessary, rewind or fast forward the tape to the point at which you want to begin recording.)
- 2** Press the **numerical buttons** or **CH** (▲/▼) to select the channel to be recorded.
- 3** Press **TAPE SPEED/SYSTEM** to select the tape speed (SP/LP).
- 4** Press **REC/OTR** to begin recording.
 - The REC indicator on the display comes on.
- 5** Press **STOP** when recording is completed.

Skipping unwanted Programme Material during Recording

- 1** Press **STILL/PAUSE** when you want to temporarily halt recording.
 - You can check the remaining pause time with ■ marks on the TV screen. Each ■ mark represents 1 minute. After 5 minutes, the VCR will automatically switch to the Stop mode to prevent tape damage.
- 2** Press **STILL/PAUSE** or **REC/OTR** to resume recording.

Recording one Programme while viewing another

You can record one programme while viewing another. To start recording, follow steps **1** to **4** under "Viewing and Recording the same Programme". Then, set the TV to the channel you want to watch.

To monitor the progress of your recording

Select the video channel on the TV.

Assemble Function

You can record in continuation from previous programme on a pre-recorded tape.

- 1** Insert a pre-recorded tape. Press **PLAY** to start playback.
- 2** Press **STILL/PAUSE** at the desired point on the tape.
- 3** Press **REC/OTR**. The VCR/DVD will be the Recording Pause mode.
- 4** Press **CH** (▲/▼) to select the channel to be recorded.
- 5** Press **REC/OTR** or **STILL/PAUSE**. The recording will begin.
- 6** Press **STOP** when recording is completed.

Hi-Fi Stereo Sound System

This VCR/DVD will record and playback Hi-Fi stereo sound. In addition it has an A2 and NICAM stereo sound decoder. This equipment will receive stereo and bilingual broadcasts and there are several ways of recording and playing back the sound.

Selecting the Sound Mode

You can select each mode by pressing **AUDIO**. Each mode is indicated on the TV screen as following.

- During playback of the recorded tape in Hi-Fi mode:

Mode	AUDIO OUTPUT		Display on the TV screen
Stereo	L	Hi Fi L Audio	STEREO
	R	Hi Fi R Audio	
L	L	Hi Fi L Audio	LEFT
	R	Hi Fi L Audio	
R	L	Hi Fi R Audio	RIGHT
	R	Hi Fi R Audio	
Normal	L	Normal Audio	- None -
	R	Normal Audio	

- Reception of stereo broadcasts:

Mode	AUDIO OUTPUT		Display on the TV screen
Stereo	L	L Audio	STEREO
	R	R Audio	
L	L	L Audio	LEFT
	R	L Audio	
R	L	R Audio	RIGHT
	R	R Audio	
Monaural	L	L+R Audio	- None -
	R	L+R Audio	

- During reception of bilingual broadcasts:

Mode	AUDIO OUTPUT		Display on the TV screen
MAIN	L	Main Audio	MAIN
	R	Main Audio	
SUB	L	Sub Audio	SUB
	R	Sub Audio	
MAIN SUB	L	Main Audio	MAIN SUB
	R	Sub Audio	

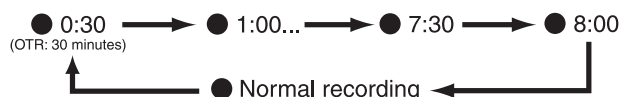
NOTES:

- If you play non-Hi-Fi tapes, the VCR/DVD will play automatically in monaural even if you select any mode.
- If the stereo signal becomes weak, the broadcast is automatically recorded in monaural.

OTR (One Touch Recording)

This function enables you to set the duration of a recording simply by pressing **REC/OTR**.

- 1** Follow steps **1** to **3** in "Viewing and Recording the same Programme".
- 2** Press **REC/OTR** repeatedly until the desired recording length appears in the upper left corner of the TV screen.



Recording stops when 0:00 is reached.

- To check remaining time during an OTR, press **DISPLAY**.
- To change the recording length during an OTR, press **REC/OTR** until the desired length appears.
- To stop an OTR before recording is finished, press **STOP**.
- To cancel the OTR but continue recording, press **REC/OTR** repeatedly until "●" appears without the recording length.

NOTE:

- If there is no timer recording set after an OTR, the VCR/DVD switches to DVD mode and flashes because the VCR is still on standby for timer recordings. Press **TIMER ON/OFF** on the remote control or **STOP/EJECT** on the VCR/DVD to cancel timer standby, then press **VCR** button to use the VCR again. If there is a timer recording set after an OTR, the VCR/DVD switches to the DVD mode and lights up, indicating that the VCR/DVD is on timer standby. Press **TIMER ON/OFF** on the remote control or **STOP/EJECT** on the VCR/DVD to cancel timer standby, then press **VCR** button to use the VCR again.

Auto Repeat Playback

The VCR/DVD has an auto repeat function that allows you to repeat a tape indefinitely without touching **PLAY**.

- 1** Insert a pre-recorded tape and press **VCR**, then **MENU**.
- 2** Press **▲** or **▼** to select SET UP, then press **►**.
- 3** Press **▲** or **▼** to select AUTO REPEAT.
- 4** Press **►** so that ON appears next to AUTO REPEAT on the TV screen.

When in Stop mode, Auto Repeat mode will start automatically. If the on-screen menu still remains, press **MENU** to exit, then press **PLAY**.

NOTE:

- Once you select the Auto Repeat mode, it stays in effect even after you turn off the VCR/DVD.

To stop playback

Press **STOP**.

To exit the Auto Repeat mode

Repeat steps **1** to **3**. Then, press **►**.

OFF will appear next to AUTO REPEAT on the TV screen.

Press **MENU** to exit.

Picture Select

This function enables you to select the picture quality of a tape.

- 1** Press **VCR**, then **MENU**.
- 2** Press **▲** or **▼** to select SET UP, then press **►**.
- 3** Press **▲** or **▼** to select PICTURE.
- 4** Press **►** until the desired mode (NORMAL, SOFT, or SHARP) is indicated on the TV screen.
- 5** Press **MENU** to exit.

NOTE:

- Once you select the Picture Select mode, it stays in effect even after you turn off the VCR/DVD.

Automatic Operation

Automatic Rewind, Eject

When the end of a tape is reached during recording, playback or fast-forward, the tape will automatically rewind to the beginning. After that, the VCR/DVD will eject the tape.

- The tape will not auto-rewind during timer recording or One Touch Recording.

Tape Eject

A tape can be ejected with the VCR/DVD power on or off (but the VCR/DVD must be plugged in).

- If a timer recording is set, press **STOP/EJECT** twice to eject a tape.

Real Time Tape Counter

- This shows the elapsed recording or playback time in hours, minutes and seconds on screen. (Nothing is shown in the case of blank portion)
- The “-” indication will appear when the tape is rewound further than the tape counter position “0:00:00”.
- To reset tape counter, press **CLEAR/C-RESET**.

Timer Recording

You may programme the VCR/DVD to start and end a recording while you are away. You can set 8 programmes to record on specific days, daily or weekly within a 1-year period.

- Insert a tape with its erase-prevention tab in place. (If necessary, rewind or fast forward the tape to the point at which you want to begin recording.)

- 1** Press **VCR**, then **MENU**.
- 2** Press **▲** or **▼** to select TIMER, then press **►**.

NOTE:

- If you have not set the clock yet, **CLOCK** setting menu appears. If so, follow the steps outlined in the “Setting the Clock”. Then, set the timer.
- When you press **►** after pressing **▲** or **▼** during steps **3** to **9**, the input mode will move to the next step.
- If you do not press **►** within 5 seconds of setting an item, the input mode will move to the next step.
- Press **◀** to go back one step from the current setting during steps **4** to **10**. If **◀** is pressed when the **TIMER NUMBER** is flashing, the entire programme contents will be erased.
- 3** Programme number flashes. Press **▲** or **▼** repeatedly until the desired programme number appears. Then, press **►**.
- 4**
 - For once-only recording** : Press **▲** or **▼** repeatedly until the relevant month appears.
 - For daily recording** : To record a TV programme at the same time on the same channel from Monday through Friday. While the month digit is flashing, press **▲** or **▼** repeatedly to select MO-FR.
 - For everyday recording** : To record a TV programme at the same time on the same channel every day. While the month digit is flashing, press **▲** or **▼** repeatedly to select MO-SU.
 - For weekly recording** : To record a TV programme at the same time on the same channel every week. While the month digit is flashing, press **▲** or **▼** repeatedly to select W-MO (Example: every monday).
- 5** **For once-only recording only** : Press **▲** or **▼** repeatedly until your desired day appears.
- 6** Press **▲** or **▼** repeatedly until the relevant start hour appears. Next, enter the minute digit.
- 7** Press **▲** or **▼** repeatedly until the relevant end hour appears. Next, enter the minute digit.
- 8** Press **▲** or **▼** repeatedly until the relevant channel number appears.
- 9** Press **▲** or **▼** repeatedly until your the desired tape speed appears.
- 10** Press **►**. Programme 1 is now completed.
 - To set another timer programme, repeat steps **3** to **10**.
- 11** Press **MENU** to exit.
- 12** Press **TIMER ON/OFF** to activate the timer. The **⏰** indicator on the display comes on.

To stop a Timer Programme which has already started

Press **STOP/EJECT** on the VCR/DVD.

NOTE: The **STOP** on the remote control will not function in the “Timer Recording” mode.

To correct timer programmes

If you want to correct an automatic timer after you finished setting programme,

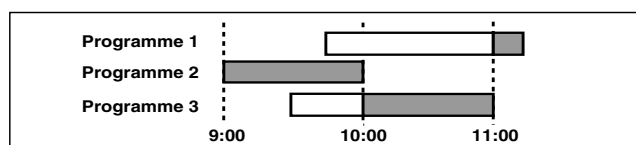
- 1** Repeat steps **1** to **3** in the "Timer Recording" section.
- 2** Select the setting you want to change using ◀ or ▶.
- 3** Enter the correct numbers using ▲ or ▼, then press ▶.
- 4** Press **MENU** to exit.
- 5** Press **TIMER ON/OFF** to return to timer stand-by mode.

To cancel or check the start/end time

- 1** Repeat steps **1** to **2** in the "Timer Recording".
- 2** Select a programme number you want to check using ▲ or ▼. The details of selected programme appears on the TV screen. You may cancel the entire programme by pressing ◀.
- 3** Press the **MENU** button to exit.

To avoid overlap of TIMER programmes ...

A timer programme will not work while another programme is under execution.



Hints for Timer Recording

- If there is a power failure or the VCR/DVD is unplugged for more than 1 hour, clock and all timer settings will be lost.
- If a tape runs out before a timer recording is finished, the unit ejects the tape and switches into DVD mode automatically. Press **TIMER ON/OFF** to activate VCR function.
- Once the unit goes into Timer-standby mode, no VCR functions are available until **TIMER ON/OFF** is pressed. (**OUT PUT** on the front panel and **VCR** on the remote control will not function.)
- Press **TIMER ON/OFF** to activate VCR functions after your timer recording is finished.
- DVD functions are available during Timer-standby mode and Timer recording. You don't have to stop your timer recording.

Auto Return

If there are any remaining programmes including Daily, Everyday and Weekly, AUTO RETURN will not operate.

- 1** Press **VCR**, then **MENU**.
- 2** Press ▲ or ▼ repeatedly to point to SET UP, then press ▶.
- 3** Press ▲ or ▼ to point to AUTO RETURN, then press ▶. [ON] will appear next to AUTO RETURN.
- 4** Press **MENU**.

Watch the Recorded TIMER PROGRAMME

Press **OPERATE** to turn on the VCR/DVD, then press **PLAY**.

Quick-Find

This function enables you to search and confirm the contents of the recorded programme(s) using the index mark.

- The tape must be fully rewind.
- 1** Press **VCR**, then **QUICK-FIND**.

To skip to the beginning of next programme

Press **QUICK-FIND**.

To view at normal speed

Press **PLAY**. The Quick-Find is cancelled.

NOTES:

- This function will not operate in the Recording mode.
- When you want to cancel the Quick-Find while in progress, press **STOP**.
- When the end of a tape is reached during the Quick-Find, the tape will automatically rewind to the beginning. After rewinding finishes, the VCR/DVD will eject the tape.

Index Search

- The index mark will be made automatically when **REC/OTR** is pressed. It will also be marked at the starting point of Timer recording and OTR.
- The index mark is not recorded if **STILL/PAUSE** is pressed and released during recording.
- The time gap between index marks on the tape should be greater than 1 minute for SP recording and 2 minutes for LP recording.

1 Press SEARCH MODE.

2 Press ▲ or ▼ repeatedly until the number of programmes that you want to skip appears.

3 Press ◀ or ▶.

The VCR/DVD begins rewinding or fast forwarding to the beginning of desired programme.

- When the preset programme is reached, the VCR/DVD will start playback automatically.

NOTES:

- Index Search can be set up to 20.
- This function will not operate in the Recording mode.
- Operations must be followed up within 30 seconds, from steps **2** to **3**. Otherwise the Index Search mode will be cancelled.
- To exit the Index Search mode, press **MENU** in step **2**. Or press **STOP** after step **3**.

Time Search

If a tape includes both programmes recorded in the PAL system and ones recorded in the NTSC system, this function may not be operated correctly.

1 Press VCR, then SEARCH MODE twice.

2 Press ▲ or ▼ repeatedly until the desired time appears.

3 Press ◀ or ▶.

The VCR/DVD begins rewinding or fast forwarding to the specified point.

When 0:00 is reached, the VCR/DVD will start playback automatically.

NOTES:

- Time Search can be set up to 9 hours 59 minutes (9:59).
- This function will not operate in the Recording mode.
- Operations must be followed up within 30 seconds, from steps **2** to **3**. Otherwise the Time Search mode will be cancelled.
- To exit the Time Search mode, press **MENU** in step **2**. Or press **STOP** after step **3**.

Recording from DVD to VCR

1 To activate DVD function, press DVD.

2 Insert a non-copyright-protection DVD, then press **PAUSE** at the point where you want to start recording.

3 Press **VCR**, then insert a tape with its erase-prevention tab in place. Make sure the VCR function is in Stop mode after you find your recording point.

4 Press **TAPE SPEED/SYSTEM** to choose your recording speed. "SP" or "LP" appears on the front panel display.

5 Press **0, 0, 4**, with the **numerical buttons**, then "disc" briefly appears on the front panel display.

6 Press REC/OTR.

- The recording of the DVD's paused image selected at step **2** starts.

7 Press DVD, then press PLAY.

- The recording of the DVD's moving image starts.

8 To stop recording, press VCR, then STOP.

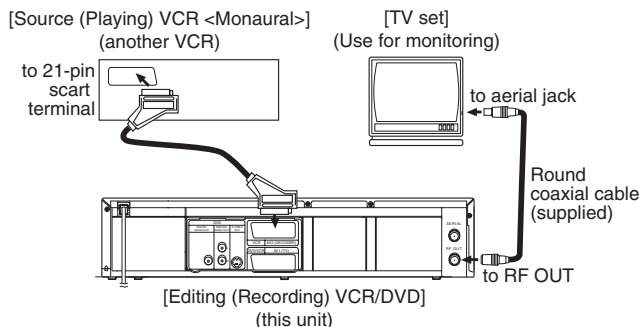
VCR OPERATION

Copying a Video Tape

You can make copies of videotapes made by friends or relatives for your own enjoyment.

WARNING: Unauthorised recordings of copyrighted video tapes may be an infringement of copyright laws.

Connect the recording VCR/DVD (this unit), playing VCR (another VCR) and your TV as outline in the following diagram.



- 1 Insert a pre-recorded tape into the playing VCR.
- 2 Insert a tape with its erase prevention tab in place into the cassette compartment of the recording VCR/DVD.
- 3 Press **TAPE SPEED/SYSTEM** to select the desired recording speed (SP/LP).
- 4 Select "AV2" or "AV3" position on the recording VCR/DVD.
AV3 input jacks are on the front of this VCR/DVD.
- 5 Press **REC/OTR** on the recording VCR/DVD.
- 6 Begin playback of the tape in the playback VCR.
- 7 To stop recording, press **STOP/EJECT** on the recording VCR/DVD, then stop playback of the tape in the playing VCR.

NOTES:

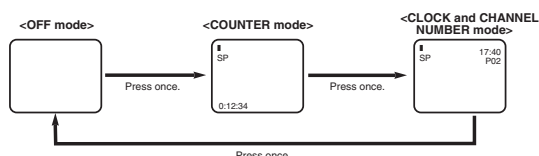
- For best results during dubbing, use the VCR/DVD's front panel controls whenever possible. The remote control might affect the playback VCR's operation.
- If video or colour fades in and out, you may be copying a copy guarded video tape.
- Unauthorised recording of copyrighted materials may infringe on the rights of copyright owners, violate copyright laws and may not record clearly.

To monitor the recording

Turn on the TV and select the video channel on the TV.

Status Display

- **To check the Counter, or Clock & Channel number,** press **DISPLAY**. Each time you press **DISPLAY**, TV screen will change as illustrated:
When you select the channel using the remote control the **numerical buttons**, select the desired channel (position number).

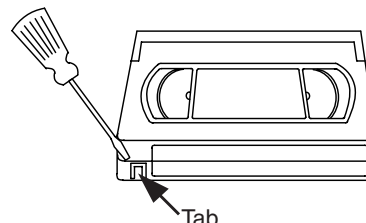


NOTE: If the display shows an abnormal reading or no reading, press **RESET** button on the bottom of the VCR/DVD.

Video Cassette Tape

This VCR/DVD will operate with any cassette that bears the VHS mark. For best results, we recommend the use of high-quality tapes. Do not use poor quality or damaged tapes.

- You can prevent accidental erasing of a recording by breaking off the erase-prevention tab on the back edge of the cassette.
- If you decide to record on the tape again, cover the hole with plastic tape.



Two Different Tape Speeds

Before recording, select the tape speed : SP mode (Standard Play) or LP mode (Long Play).

The table below shows the maximum recording/playback time using E-60, E-120, E-180 or E-240 tapes in each mode.

TYPE OF TAPE	RECORDING/PLAYBACK TIME	
	TAPE SPEED	
	SP MODE	LP MODE
E-60	1 HOUR	2 HOURS
E-120	2 HOURS	4 HOURS
E-180	3 HOURS	6 HOURS
E-240	4 HOURS	8 HOURS

TV Colour System

Different countries use different television colour systems. Tapes recorded in the PAL, MESECAM or NTSC system can be played back on this unit. Usually, the picture on the TV screen will be in black and white when you play back a tape that is recorded in a different colour system.

Tapes recorded in the NTSC system can be played back on this unit and a PAL system TV set. This feature is only available in the SP mode. When playing back such tapes, the picture may roll up or down, shrink vertically and black bars may appear both at the top and bottom of the screen. Adjust the vertical hold control on your TV, if the TV features this control.

Basic Playback

DVD

CD

MP3

DVD-RW

VR mode

VCD

JPEG

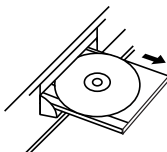
Getting started

- Turn on the power of the TV, amplifier and any other components which are connected to the VCR/DVD.
- Make sure the TV and audio receiver (commercially available) are set to the correct channel.
- When you play NTSC recorded discs, the default setting converts this to a modified PAL (Refer to page 28 "Display Setting").

1 Press **OPERATE**, then DVD.

2 Press **OPEN/CLOSE** to open disc loading tray.

3 Place the chosen disc on the tray, with the label facing up.



4 Press **PLAY**.

- The tray will close automatically, and playback will then start from the first chapter or track of the disc. If the playback does not start automatically, press **PLAY**.
- When you playback the DVD which a title menu is recorded, it may appear on the screen. In this case, refer to "TITLE MENU".

5 Press **STOP** to stop playback.

NOTES:

- A "prohibited icon" may appear at the top-right on the TV screen during operation, warning that a prohibited operation has been encountered by the VCR/DVD or the disc.
- With DVDs that use some titles for playback programme signals, playback may start from the second title, or it may skip these titles.
- During the playback of two layered disc, pictures may stop for a moment. This happens when the 1st layer switches to the 2nd layer. This is not a malfunction.
- A DVD-RW disc recorded in the VR mode may freeze momentarily during playback depending on how the playlist was made and edited (deleted titles, repeated recording).



General Features

DVDs or Video CDs may contain menus to navigate the disc and access special features. Enter an appropriate number or use **Arrow** (▲/▼/◀/▶) to highlight your selection in the DVD main menu and press **ENTER** to confirm.

NOTE:

- Unless stated, all operations described are based on remote control use.

Cancelling PBC* (for playback of a Video CD)

1 Insert a Video CD. (Playback will start automatically.)

2 Press **STOP**.

3 Enter track number of your choice with the **numerical buttons**.

4 PBC is now cancelled and the playback of the Video CD will start.

*What is PBC?

"PBC" stands for the PlayBack Control. You can play interactive software using a menu screens. Refer to instructions of Video CD.

Pause

DVD

CD

MP3

DVD-RW

VR mode

VCD

1 During playback, press **STILL/PAUSE**.

- Playback will pause and sound will be muted.

2 To continue playback, press **PLAY**.

NOTE:


- Set STILL MODE to FIELD on the Display menu if pictures in the pause mode are blurred. (Refer to page 28.)

Disc Menus

DVD

1 Press **MENU**.

- The DVD main menu will appear.

2 If the feature is not available,  symbol may appear on the TV screen.


3 If disc menu is available on the disc, audio language, subtitle options, chapters for the title and other options will appear for selection.

4 Press **Arrow** (▲/▼/◀/▶) to select an item, and **ENTER** to confirm selection.

PLAYING A DISC

Title Menu

DVD

- 1 Press **TITLE**.
 - The title menu will appear.
- 2 If the feature is not available,  symbol may appear on the TV screen.
- 3 Press **Arrow** (▲/▼/◀/▶) to select an item, and **ENTER** to confirm selection.
 - Playback will begin at the selected Title.

To call up a menu screen during playback

- Press **MENU** to call up the DVD main menu.
- Press **TITLE** to call up the title menu.

VCD

- 1 Insert a Video CD.
 - The title menu will appear.
- 2 Press the **numerical buttons** to select the menu. Playback will start.

NOTE:

- Contents of menus and corresponding menu operations may vary between discs. Refer to the manual accompanying the disc for details.

Step by Step Playback

DVD

DVD-RW

VCD

VR mode

- 1 During playback, press **STILL/PAUSE**.
 - Playback will pause and sound will be muted.
- 2 The disc goes forward by one frame each time **STILL/PAUSE** is pressed.
- 3 To exit step by step playback, press **PLAY**.

NOTE:

- Set STILL MODE to FIELD on the Display menu if pictures during step by step playback are blurred. (Refer to page 28.)

Rapid Play

DVD

Available only on discs recorded in the Dolby Digital format, Rapid Play plays back in slightly faster/ slower speed while keeping the sound quality as in the normal playback.

- 1 Press **MODE** during playback.
 - The current setting appears.
- 2 Press ◀ or ▶ to switch among
 - ⏮ (x1.3), ⏭ (x0.8) and OFF.
 - ⏭ : Plays back approximately at 0.8 times of normal playback.
 - ⏮ : Plays back approximately at 1.3 times of normal playback.
- 3 To return to normal playback, press **PLAY**.

NOTES:

- Audio (language) setting cannot be changed while using this mode.
- Virtual Surround and Digital Gamma settings cannot be changed while using this mode.
- Virtual Surround does not function while using this mode.
- This feature may not work at some point in a disc.
- When using digital audio connection (COAXIAL), the

Resume

DVD

CD

VCD

DVD-RW

without PBC function

VR mode

- 1 During playback, press **STOP**.
 - Resume message will appear on the TV screen.
- 2 Press **PLAY**, playback will resume from the point at which playback was stopped.
 - To cancel resume, press **STOP** again.
 - To stop playback, press **STOP** twice from playback mode.

NOTE:

- For MP3 and JPEG, playback will resume from the beginning of the current track.

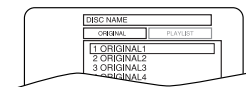
Playing the disc recorded in VR mode (Video Recording format)

DVD-RW

VR mode

DVDs recorded in VR mode can have a PLAYLIST assigned to alter the order or content to be played. If a PLAYLIST has been created, you can choose the ORIGINAL or PLAYLIST option.

- 1 Press **MENU** in stop mode.
 - The current setting screen will appear.
 - Pressing **MENU** during playback is not valid.



- 2 Press ◀ or ▶ to select ORIGINAL or PLAYLIST.
 - PLAYLIST will not be displayed when it has not been made.
 - Resume playback will not be possible if you change the setting.
- 3 Press ▲ or ▼ to select a title, then press **ENTER**.
 - Playback will start.

NOTE:

- [ORIGINAL]: A list of titles which are recorded with a DVD recorder.
- [PLAYLIST]: A list of titles which is made based on the ORIGINAL edited list.

Fast Forward / Reverse Search

DVD CD MP3 DVD-RW VCD

VR mode

- During playback, press **FWD** ►► or **REV** ◄◄ repeatedly to select the required forward or reverse speed.
 - For DVDs, fast forward or reverse search speed is different depending on the disc. Approximate speed is 1 (x2), 2 (x8), 3 (x50), and 4 (x100).
 - For Video CDs, fast forward or reverse search speed is different depending on the disc. Approximate speed is 1 (x2), 2 (x8), 3 (x30).
 - For audio CDs, the approximate speed is x16.
 - For MP3, the approximate speed is x8.
 - If you are using **FF** ►► or **REW** ◄◄ on the front panel, press and hold it for more than 1.5 seconds. When you reach the desired speed, release the button.
- To return to normal playback, press **PLAY**.

Slow Forward / Reverse

DVD DVD-RW VCD

VR mode

- During playback, press **STILL/PAUSE**.
- Press **FWD** ►► or **REV** ◄◄.
 - Slow motion playback will begin and sound will be muted.
- Press **FWD** ►► or **REV** ◄◄ repeatedly to select the required speed.
 - Slow forward or reverse speed is different depending on the disc. Approximate speed is 1 (1/16), 2 (1/8) and 3 (1/2).
 - If you are using **FF** ►► or **REW** ◄◄ on the front panel, press and hold it for more than 1.5 seconds. When you reach the desired speed, release the button.
- To return to normal playback, press **PLAY**.

NOTES:

- Set STILL MODE to FIELD on the Display menu if pictures in the slow playback mode are blurred. (Refer to page 28.)
- You cannot play Video CDs in reverse slow motion.

Zoom

DVD DVD-RW VCD JPEG

VR mode

The Zoom function allows you to enlarge the video image and to pan through the enlarged image.

- Press **ZOOM** during playback.
 - Playback will continue.
- Press **ZOOM** repeatedly to select the required zoom factor: x2, x4 or OFF.
- Use **Arrow** (▲/▼/◄/►) to move the zoomed picture across the screen.
- To exit zoom mode, press **ZOOM** to OFF.

NOTES:

- Zooming function does not work while disc menu is shown.
- x4 zoom is not available on some discs.
- Only x2 zoom is available on Video CDs and JPEG.
- You may not be able to move zoomed JPEG pictures.

Track Search

CD MP3 VCD JPEG

without PBC function

There are three ways to begin playback on an Audio CD, Video CD, MP3 or JPEG disc at a specific Track.

Using Numerical buttons

- Press **numerical buttons** to enter the desired Track number.
 - Playback will start at the selected track.
 - For single digit tracks (1-9), press a single number (eg. track 3, press 3).
 - To play track 26, press **+10**, **2**, **6** on **numerical buttons**.

Using DIRECT SKIP.

- Press **DIRECT SKIP**.
 - The track search display appears.
- Within 30 seconds, select a desired track number using **numerical buttons**. For single digits press "0" first.
 - Playback will start at the selected track.

Using SKIP ◀◀ ▶▶

During playback, press **SKIP** ▶▶ to move to the next track. Press it quickly and repeatedly to skip subsequent tracks. Press **SKIP** ◀◄ to go back to the beginning of the current track. Press it repeatedly to go to the previous tracks.

- Track number will appear briefly on the VCR/DVD display panel.
- If **SKIP** is pressed while the playback is paused, the playback will be paused again after skipping to the next track.

NOTE:

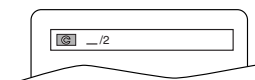
- SKIP** ◀◄ ▶▶ are not available when playback is stopped.

Title / Chapter Search

DVD DVD-RW

VR mode

- During playback, press **DIRECT SKIP** repeatedly until the Chapter Search or the Title Search screen appears.



- Enter the desired chapter/title number using the **numerical buttons**.

NOTE:

- Depending on the disc being played, this function can also be performed by directly entering the desired chapter number using **numerical buttons**. Refer to the manual accompanying the disc.

Time Search

DVD CD DVD-RW VCD

VR mode without PBC function

- During playback, press **DIRECT SKIP** repeatedly until the Time Search screen appears.
- Within 30 seconds, enter a desired disc time using **numerical buttons**.
 - Playback will start at the specified time.
 - When there is no need to enter a number, "0" appears automatically. For example, "0:0 _ : _" appears in the Time Search display if the total time of the disc is less than 10 minutes.

NOTE:

- Press **CLEAR/C-RESET** to erase the incorrect input.

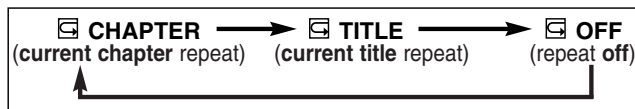
PLAYING A DISC

Repeat

- **REPEAT** are available only during playback.

DVD

- To activate the repeat function, press **REPEAT** during playback.
- The repeat mode changes as described below every time you press the button.



DVD-RW VR mode



NOTES:

- Repeat Title/Chapter is not available with some scenes.
- The REPEAT setting will be cleared when moving to other title or chapter.

CD

VCD

without PBC function

- To activate the repeat function, press **REPEAT** during playback.
- The repeat mode changes as described below every time you press the button.



NOTES:

- The REPEAT setting will be cleared when moving to other track.
- Repeat playback does not function during A-B REPEAT playback.

MP3

JPEG



A-B REPEAT

DVD

CD

DVD-RW

VCD

VR mode

- 1 Press **A-B REPEAT** at your chosen starting point.
 - ☒ A- appears briefly on the TV screen.
- 2 Press **A-B REPEAT** again at your chosen end point.
 - ☒ A-B appears briefly on the TV screen, and the repeat sequence begins.
- 3 To exit the sequence, press **A-B REPEAT**.

NOTES:

- The A-B REPEAT section can only be set within the current title (for DVDs), or current track (for audio CDs).
- A-B REPEAT is not available with some scenes in DVD.
- To cancel the A point which was set, press **CLEAR/C-RESET**.
- A-B REPEAT playback does not function during title, chapter, track or all repeat playback.

Programme (CD)

CD

You may determine the order in which tracks will play.

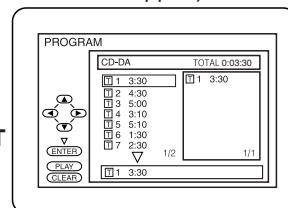
- 1 Press **MODE** (playback must first be stopped).

- The PROGRAM screen will appear.

- 2 Press **▲** or **▼** to select a track, then press **ENTER**.

- Press **CLEAR/C-RESET** to erase the most recently entered programme.

- 3 Press **PLAY** to play the programmed tracks.



NOTES:

- While the programme is being played back, the **STOP** works as follows.
- Press **STOP** once and then **PLAY** again, playback will restart from the point where **STOP** was pressed. (Programme continued)
- Press **STOP** twice and then **PLAY**. Playback starts from the track in the original order. However, the programme can be called back when you follow the above steps. Your programmes will be stored unless either the disc tray is opened or power is turned off.
- Up to 99 programmes can be entered.
- To erase all tracks in the programme at once, select **ALL CLEAR** at the bottom of the list at step 2.
- To repeat the current track in the programme, press **REPEAT** repeatedly until ☒ TRACK appears during playback. If you like to repeat the entire programme press **REPEAT** repeatedly until ☒ ALL appears during playback.
- Refer to page 23 for programme playback of MP3 and JPEG.

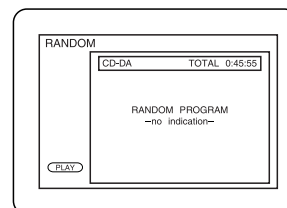
Random Playback (CD)

CD

This shuffles the playing order of tracks instead of playback in the sequence.

- 1 In stop mode, press **MODE** repeatedly until the **RANDOM** screen appears.

- 2 Press **PLAY** to start random playback.



NOTES:

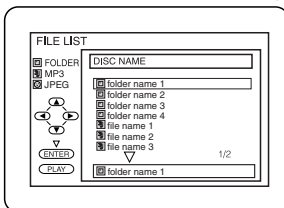
- To repeat the current track in the random selection, press **REPEAT** repeatedly until ☒ TRACK appears during playback. To repeat the entire random selection press **REPEAT** repeatedly until ☒ ALL appears during playback.
- Refer to page 23 for random playback of MP3 and JPEG.

MP3/JPEG Playback




MP3 JPEG

When a CD with MP3 or JPEG files is inserted in the VCR/DVD and **MENU** is pressed, the FILE LIST will appear on display. The number of tracks is also displayed on the front panel.

- Press **▲** or **▼** to select the desired group (folder) or track.
 - If a group (folder) is selected, press **▶** or **ENTER** to go on to the track selection screen. Press **▲** or **▼** to choose a track, then press **PLAY** or **ENTER**.
 - If a track is selected, press **PLAY** or **ENTER** to start playing tracks. Starting from the one that has been chosen and the subsequent tracks will be played.
 - Press **TITLE** to return to the first item.
- Press **STOP** to stop playback.



NOTES:

- Folders are known as Groups; files are known as Tracks.
- Folders are accompanied by  icon.
- MP3 files are accompanied by  icon.
- JPEG files are accompanied by  icon.
- Maximum of 255 folders can be recognised.
- Maximum of 512 files can be recognised.
- Up to 8 hierarchies can be created.

This VCR/DVD recommends the use of files recorded at the below specifications:

- Sampling frequency: 44.1kHz or 48kHz
- Constant bit rate: 112kbps ~ 320kbps.

Applicable JPEG file		Remarks
Size of image	Upper limit: 6300x5100 dots Lower limit: 32x32 dots	A JPEG image that extends beyond the screen is reduced so that it will be displayed within the screen.

Information on MP3 and JPEG files

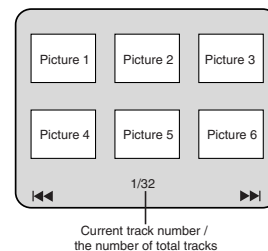
- This VCR/DVD can play back images and sounds from data recorded in MP3 and JPEG formats on CD-R and CD-RW discs.
- A file with an extension of ".mp3 (MP3)" is called an "MP3 file".
- A file with an extension of ".jpg (JPG)" or ".jpeg (JPEG)" is called a "JPEG file".
The VCR/DVD can run an image file conforming to the Exif specification. Exif is a file format, Exchangeable Image File format established by Japanese Electronic Industry Development Association (JEIDA).
- Files whose extension is other than ".mp3 (MP3)", ".jpg (JPG)" and ".jpeg (JPEG)" will not be listed in the MP3 or JPEG menu.
- If the file is not recorded in MP3 or JPEG format, noise may be produced even if the file extension is either ".mp3 (MP3)", ".jpg (JPG)" or ".jpeg (JPEG)".
- The name of group and track can be displayed in up to 25 characters. Unrecognisable characters will be replaced with asterisks. The ninth and deeper hierarchies cannot be displayed.
- Unplayable groups or tracks may be displayed depending on the recording conditions.
- If **TITLE** is pressed when a file list is displayed, the first item will be highlighted.

Kodak Picture CD

The VCR/DVD can also run JPEG files stored on Kodak Picture CDs. The Picture CD is a service to convert photographs taken by a conventional film camera into digital data and write the data on a CD. The user can enjoy picture images on the television set by playing back the Picture CDs. For details of Kodak Picture CD, contact a shop that deals with developing service of Kodak Inc.

- Press **MENU**. Kodak Picture CD menu appears.

- If all menu items cannot be displayed in the screen scope, **▶▶** appears at the right bottom of the screen, indicating that the user can view remaining items on the next page. **◀◀** appears, it indicates that the user can view other items on the previous page. The track number of the currently highlighted item and the total tracks are shown at the centre bottom of the screen.
- If **▶▶** is shown at the right bottom, use **SKIP ▶▶** to view the next page. If **◀◀** is shown at the left bottom, use **SKIP ◀◀** to view the previous page.
- It may take some time until all menu items are displayed on the menu screen.



- Press **Arrow (▲/▼/◀/▶)**, select a desired track to be played, then press **PLAY** or **ENTER**.

- If a Kodak Picture CD file is selected, an image will be played back from the selected track and go to the next one in turn.

- Press **STOP** to stop playback.

NOTES on JPEG and Kodak Picture CD playback

- A track is displayed for 5 seconds and then the next track is displayed.
- Every press on **▶** will turn the image clockwise by 90 degrees when an image is displayed. A press on **◀** will turn the image counterclockwise by 90 degrees.
- If a group is selected, press **▲** or **▼** to select a desired group, then press **▶**, **PLAY** or **ENTER** to select a track.

PLAYING A DISC

Slide Show Mode

JPEG

You can switch to the slide show mode during playback.

- 1 Press **MODE** during playback.
 - The slide show mode screen will appear.
 - The slide show mode cannot be switched when it is stopped, or from the file list screen or the Picture CD menu screen.
- 2 Press **ENTER**.
 - The slide show mode will change.
CUT IN/OUT: The entire image appears in one time.
FADE IN/OUT: The image appears gradually and then disappears.
- 3 Press **MODE** to exit.

Programme (MP3/JPEG)

MP3 JPEG

This feature allows you to programme an MP3 or JPEG disc to play in a desired sequence.

- 1 Press **MODE** (playback must first be stopped).
 - The PROGRAM screen will appear.
- 2 Press **▲** or **▼** to select a track, then press **ENTER**, to save it in a programme.
 - Press **CLEAR/C-RESET** to erase the incorrect input.
- 3 Press **PLAY** to start programmed playback.

NOTES:

- To erase all tracks in the programme at once, select ALL CLEAR at the bottom of the list at step 2.
- Press **STOP** once and then **PLAY** again, playback will restart from the beginning of the track at which **STOP** was pressed.
- Press **STOP** twice and then **PLAY**. Playback starts from the track in the original order. However, the programme can be called back when you follow the above steps. Your programmes will be stored unless either the disc tray is opened or power is turned off.

Random Playback (MP3/JPEG)

MP3 JPEG

- 1 In stop mode, press **MODE** repeatedly until the RANDOM screen appears.
- 2 Press **PLAY** to play the tracks in random order.

Stereo Sound Mode

CD VCD

- 1 Press **AUDIO** repeatedly during playback to select between STEREO, L-CH or R-CH.
STEREO - both right and left channels are active (stereo)
L-CH - only left channel is active
R-CH - only right channel is active

NOTE:

- If the Virtual Surround setting is ON, the sound mode will be fixed to STEREO, and cannot be changed.
- Stereo sound mode will not be changed when playing DTS CD.

Audio Language

DVD DVD-RW

VR mode

The VCR/DVD allows you to select a language during DVD disc (if multi language available) playback.

- 1 Press **AUDIO** during playback.
- 2 Press **AUDIO** repeatedly to select your desired language.

NOTES:

- The sound mode cannot be changed during playback of discs not recorded in double sound.
- Audio language selection cannot be made during Rapid Play. (Refer to page 20.)
- Pressing **AUDIO** may not work on some DVDs with multiple audio languages (e.g. DVDs which allow audio language setting on the disc menu).

NOTES (for VR mode only):

- Pressing **AUDIO** cycles the sound mode through MAIN, SUB, MAIN + SUB.
- DVD-RW discs recorded in double sound (two languages) can be played back in either sound mode of MAIN, SUB or MAIN + SUB.
- With discs recorded in VR mode, changing the audio (MAIN, SUB or MAIN+SUB) is effective only when using an analogue connection. Although you may be able to change the settings of the on-screen display, it will not affect the sound when using a digital connection.

Mode	AUDIO OUTPUT		Display on the TV screen
MAIN	L	Main Audio	MAIN
	R	Main Audio	
SUB	L	Sub Audio	SUB
	R	Sub Audio	
MAIN SUB	L	Main Audio	MAIN+ SUB
	R	Sub Audio	

Subtitle Language

DVD **DVD-RW**

VR mode

The VCR/DVD allows you to select a language for subtitle during DVD disc (if available) playback.

- 1 Press **SUBTITLE** during playback.
- 2 Press **SUBTITLE** repeatedly to select your desired subtitle language.
 - The selected language will be displayed on the display bar at the top of the screen.
- 3 To turn off subtitles, press **SUBTITLE** repeatedly until OFF appears.

NOTES:

- Some discs allow audio language setting/subtitle language setting on the disc menu. (Operation varies between discs, so refer to the manual accompanying the disc.)
- If the desired language is not shown after pressing **SUBTITLE** several times, the disc does not have subtitles in that language.
- If you choose a Language that has a 3 letter language code, the code will be displayed every time you change the Subtitle language setting. If you choose any other languages, '---' will be displayed instead. (Refer to page 29.)
- Pressing **SUBTITLE** may not work on some DVDs with multiple subtitle languages (e.g. DVDs which allow subtitle language setting on the disc menu).

Camera Angle

DVD

Some DVDs contain scenes which have been shot simultaneously from various angles. You can change the camera angle when the (ANGLE) icon appears on the screen. If the ANGLE ICON setting is OFF in the Display setting, the (ANGLE) icon will not appear. (Refer to page 28.)

- 1 Press **ANGLE** during playback.
 - The selected angle will be displayed on the display bar at the top of the screen.
- 2 Press **ANGLE** repeatedly to select your desired angle.

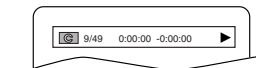
Changing the On-Screen Display

DVD **DVD-RW**

VR mode

You can check information about the current disc by pressing **DISPLAY** on the remote control.

- 1 Press **DISPLAY** during playback to show current Chapter.
 - The elapsed and remaining playing time of the current chapter will be displayed.
- 2 Press **DISPLAY** again to show current Title.
 - The elapsed and remaining playing time of the current title will be displayed.
- 3 Press **DISPLAY** again.
 - The BIT RATE and the current repeat setting will be displayed.
 - If you are playing a dual layered disc, the layer number will also be displayed (L0: Layer 0 is playing. L1: Layer 1 is playing).



If you are playing a DVD-RW with the PLAYLIST, the following will also be displayed.



ORG: Playing the ORIGINAL.
PL: Playing the PLAYLIST.

- 4 Press **DISPLAY** the fourth time to remove the display.

CD **VCD**

without PBC function

- 1 Press **DISPLAY** during playback, the current Track will be displayed on the TV screen.
 - The elapsed and remaining playing time of the current track will be displayed.
- 2 Press **DISPLAY** again to show current Total Track.
 - The elapsed and remaining playing time of the current total track will be displayed.
- 3 Press **DISPLAY** again to remove the display.

MP3 **JPEG**

- 1 Press **DISPLAY** during playback of an MP3 or JPEG disc.
 - The name of the file currently in play will be displayed.
- 2 Press **DISPLAY** again to show the track number, the elapsed time (for MP3 only), the repeat status, and the playback status at the top of the screen.
 - [REPEAT] will be displayed when the repeat play has been selected.
 - [T-] indicates Track repeat
 - [G-] indicates Group (folder) repeat
 - [A-] indicates All (disc) repeat
- 3 Press **DISPLAY** again to exit.

Marker Setup Screen

DVD

CD

DVD-RW

VCD

VR mode without PBC function

Use markers to memorise your favourite places on a disc.

- 1 Press **MARKER** during playback.
 - The display screen and Markers will appear on the TV screen.
- 2 Press **◀** or **▶** to select a Marker (1 ~ 10), and ensure that “- : - : - : - :” appears in the display.
- 3 When it reaches the desired point, press **ENTER**.
 - Selected number will turn to **✓** and the point will be marked.
 - The Title or Track and elapsed playing time will appear in the TV screen.
- 4 To return to the Marker later, press **MARKER** during playback and **◀** or **▶** to choose the desired marker (one of the **✓** mark), then press **ENTER**.

NOTES:

- Opening the disc tray or turning off the power or select AC (All Clear) at step 2 and press **ENTER** will erase all Markers.
 - To clear a marker, using **◀** or **▶**, position the cursor on to the marker number to be cleared and press **CLEAR/C-RESET**.
 - You can mark up to 10 points.
- 5 Press **MARKER** or **RETURN** to exit.

Digital Gamma Setting

DVD

DVD-RW

VCD

VR mode

DIGITAL GAMMA is a digital image quality enhancement function that gives a richer image by brightening the darker and more obscure portions of the image without altering the brightness of the brighter portions thereby making the entire image easier to see. Three digital gamma settings are available to allow for differences in the images played and in brightness of the room.

- 1 Press **GAMMA** during playback.
 - The current setting appears.
- 2 Press **ENTER** to switch 1,2,3,OFF.
 - 1,2,3 : Makes the dark parts brighter.
 - OFF : Shows the original picture as recorded.
- 3 Press **GAMMA** or **RETURN** to exit.

NOTES:

- The setting will be saved even if the VCR/DVD is turned off.
- This function cannot be used during Rapid Play. (Refer to page 20.)

Virtual Surround

DVD

CD

MP3

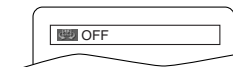
DVD-RW

VCD

VR mode

You can enjoy surround sound effect over two speakers.

- 1 Press **MODE** repeatedly until the Virtual Surround screen appears.
- 2 Press **ENTER** to set it to 1 (Natural effect), 2 (Emphasised effect) or OFF.
- 3 Press **MODE** or **RETURN** to exit.



NOTES:

- The setting will be saved even if the VCR/DVD is turned off.
- The setting will not be effective unless the sound mode is set to STEREO. (for CDs or Video CDs only)
- Turn down the level or turn it “OFF” if the sound is distorted.
- This function cannot be used during Rapid Play. (Refer to page 20.)

Audio Setting

Choose appropriate settings for best sound reproduction dependent on your externally connected equipment. These settings only affect DVD playback.

1 Press **SETUP** in STOP mode.

2 Press ◀ or ▶ to select  (CUSTOM), then press **ENTER**.

- On screen menu will appear.

3 Press ◀ or ▶ to select  (AUDIO), then **ENTER** to confirm.

4 Press ▲ or ▼ to select the items below, then press **ENTER**.

DRC (Dynamic Range Control) :

- Choose ON to compress the range of sound volume.
- The default setting is ON.
- DRC function is available only on the discs recorded in the Dolby Digital format.

DOWN SAMPLING :


- Choose ON to set down sampling to 48kHz.
- Choose OFF when outputting in the original sound.
- The default setting is ON.
- When playing a disc with copyright protection, the sound will be down sampled at 48kHz even if you set it to OFF.
- DOWN SAMPLING function is available only on digital output of a disc recorded in 96kHz, and when the unit is connected to another source using the digital out jack.
- DOWN SAMPLING function is available only on the discs recorded in the Dolby Digital format.

DOLBY DIGITAL :

Set to BITSTREAM when the VCR/DVD is connected to Dolby Digital Decoder.

(BITSTREAM : Output by Dolby Digital)

(DPCM : Convert the Dolby Digital to PCM)


- The default setting is BITSTREAM.
- You can also adjust the setting from  (QUICK) setup menu.

DTS :

Set to BITSTREAM when the VCR/DVD is connected to DTS Decoder.

(BITSTREAM : Output by DTS)

- The default setting is OFF.


- You can also adjust the setting from  (QUICK) setup menu).

MPEG :

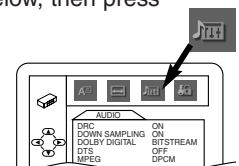
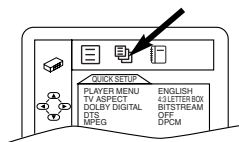
Set to BITSTREAM when the VCR/DVD is connected to MPEG Decoder.

(BITSTREAM : Output by MPEG)

(DPCM : Convert the MPEG to PCM)

- The default setting is DPCM.
- You can also adjust the setting from  (QUICK) setup menu.

5 Press **SETUP** to exit.



Parental Control


Parental Control prevents disc being viewed that exceed the set limit, unless a password is used.


This feature allows you to prevent discs with unsuitable scenes from being played by your children.

PARENTAL LEVEL

Parental Level allows you to set the rating level of your DVDs. Playback will stop if the disc's ratings exceed the level you set.

1 Press **SETUP** in STOP mode.

2 Press ◀ or ▶ to select  (CUSTOM), then press **ENTER**.

3 Press ◀ or ▶ to select  (PARENTAL), then press **ENTER**.

4 Enter your four-digit password then press **ENTER**.

5 Press ▲ or ▼ to select PARENTAL LEVEL, then press **ENTER**.

6 Press ▲ or ▼ to select the desired level (ALL to LEVEL1), then press **ENTER**.

- The rating levels continue on two menu screens. Press ▲ or ▼ to move to the next or previous screen to find the rating level.

7 Press **SETUP** to exit.

NOTES:

- When doing this for the first time, enter any 4 digits (except for 4737). This number will be used as the password from the second time onward.
- To change the password, press ▲ or ▼ to select CHANGE at step **5**, then press **ENTER**. Enter the four-digit password, then press **ENTER**.
- With some DVDs, it may be difficult to find if they are compatible with parental lock. Be sure to check if the parental lock function operates in the way that you have set.
- Record the password in case you forget it.

IF YOU FORGET THE PASSWORD

1 Press **4, 7, 3, 7** at step **4** in the PARENTAL LEVEL section.

- Password will be cleared and parental level will be set to ALL.

2 Proceed the steps **4** - **7** again to set parental level.

PARENTAL CONTROL LEVELS

• ALL

All parental lock is cancelled.

• Level 8

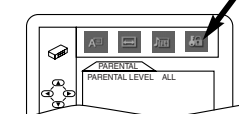
DVD software of any grade (adult/general/children) can be played back.

• Levels 7 to 2

Only DVD software intended for general use and children can be played back.



• Level 1

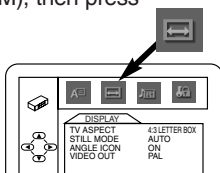
Only DVD software intended for children can be played back, with those intended for adult and general use prohibited.




Display Setting

You can change certain aspects of the DVD display screens, on-screen messages and the display panel on the front of the VCR/DVD.

- 1 Press **SETUP** in STOP mode.
- 2 Press ◀ or ▶ to select  (CUSTOM), then press **ENTER**.
 - On screen menu will appear.
- 3 Press ◀ or ▶ to select  (DISPLAY), then **ENTER** to confirm.
- 4 Press ▲ or ▼ to select the below items, then press **ENTER**.



TV ASPECT :

- Press ▲ or ▼ for an item selection, then press **ENTER**.
- Select 4:3 LETTER BOX, black bars will appear at top and bottom of the screen.
- Select 4:3 PAN & SCAN for a full height picture with both sides trimmed.
PAN & SCAN is only available on DVDs recorded with this option, if not LETTER BOX mode will be used.
- Select 16:9 WIDE if a wide-screen TV is connected to the VCR/DVD.
- The default setting is 4:3 LETTER BOX.
- You can also adjust the setting from  (QUICK) setup menu.

STILL MODE :

- Press ▲ or ▼ for item selection (AUTO, FIELD or FRAME), then press **ENTER**.
- This adjusts the resolution of pictures while in the still (PAUSE) mode.
- AUTO is normally selected (default).
- If you select FIELD, pictures in the still mode will be stabilised although they will be coarse due to little amount of data.
- If you select FRAME, pictures in the still mode will be highly defined although they will be blurred due to output of two fields at the same time.

ANGLE ICON :

- Press **ENTER** repeatedly to turn Angle icon ON or OFF.
- The default setting is ON.

VIDEO OUT:

- Press **ENTER** repeatedly to turn video out PAL or AUTO.
- The default setting is PAL.

When playing an NTSC disc

- If you have a PAL TV, select PAL; the modified PAL signal will be output.
- If you have an NTSC TV or Multi system TV, select AUTO; the NTSC signal will be output.



- 5 Press **SETUP** to exit.

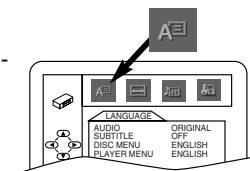
NOTE:

- Be sure to press **SETUP**, or the setting will not work.

Language Setting

Language options are not available with some discs.

- 1 Press **SETUP** in STOP mode.
- 2 Press ◀ or ▶ to select , then press **ENTER**.
 - On screen menu will appear.
- 3 Press ◀ or ▶ to select  (LANGUAGE), then press **ENTER** to confirm.
- 4 Press ▲ or ▼ to select the below items, then press **ENTER**.



AUDIO :

- Sets the audio language.


SUBTITLE :

- Sets the subtitle language.

DISC MENU :

- Sets the language for DVD Menu.

PLAYER MENU :

- Sets the language for the On-Screen display.
- You can also adjust the setting from  (QUICK) setup menu.

- 5 Press ▲ or ▼ to select a setting, then press **ENTER**.
 - If OTHER is selected in the AUDIO, SUBTITLE or DISC MENU screen, press four-digit number to enter the code for the desired language. (Refer to "language code list" on the page 29.)
 - Only the languages supported by the disc can be selected.


- 6 Press **SETUP** to exit.

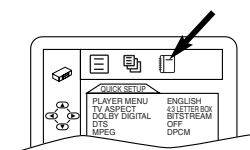
NOTE:

- Language Setting for Audio and Subtitle is not available with some discs. Then use **AUDIO** and **SUBTITLE**. (Refer to pages 24 and 25.)

Returning all selections of SETUP (except for PARENTAL) to their default settings

This allows you to return all selections of SETUP (except for PARENTAL) to their default settings.

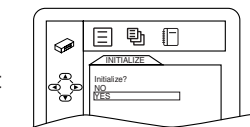
- 1 Press **SETUP** in STOP mode.
- 2 Press ◀ or ▶ to select , then press **ENTER**.
- 3 Select YES, then **ENTER** to confirm.



- 4 Press **SETUP** to exit.

NOTE:

- When you cancel to initialize at step 3, select NO.



Language Code List

Language	Code	Language	Code	Language	Code	Language	Code
A-B							
Abkhazian	4748	Galician	5358	Maltese	5966	Swahili	6569
Afar	4747	Georgian	5747	Maori	5955	Swedish [SWE]	6568
Afrikaans	4752	German [GER]	5051	Marathi	5964	T	
Albanian	6563	Greek [GRE]	5158	Moldavian	5961		6658
Amharic	4759	Greenlandic	5758	Mongolian	5960	Tagalog	6653
Arabic	4764	Guarani	5360	Nauru	6047	Tajik	6647
Armenian	5471	Gujarati	5367	Nepali	6051	Tamil	6666
Assamese	4765	Hausa	5447	Norwegian [NOR]	6061	Tatar	6651
Aymara	4771	Hebrew	5569	O-R		Telugu	6654
Azerbaijani	4772	Hindi	5455	Occitan	6149	Thai	4861
Bashkir	4847	Hungarian [HUN]	5467	Oriya	6164	Tigrinya	6655
Basque	5167	I-K		Oromo(Afan)	6159	Tonga	6661
Bengali; Bangla	4860	Icelandic [ICE]	5565	Panjabi	6247	Tsonga	6665
Bhutani	5072	Indonesian	5560	Pashto; Pushto	6265	Turkish [TUR]	6664
Bihari	4854	Interlingua	5547	Persian	5247	Turkmen	6657
Bislama	4855	Interlingue	5551	Polish	6258	Twi	6669
Breton	4864	Inupiak	5557	Portuguese [POR]	6266	U-Z	
Bulgarian	4853	Irish [IRI]	5347	Quechua	6367	Ukrainian	6757
Burmese	5971	Italian [ITA]	5566	Rhaeto-Romance	6459	Urdu	6764
Byelorussian	4851	Japanese [JPN]	5647	Romanian [RUM]	6461	Uzbek	6772
C-E		Javanese	5669	Russian [RUS]	6467	Vietnamese	6855
		Kannada	5760	S		Volapuk	6861
Cambodian	5759	Kashmiri	5765	Samoan	6559	Welsh	4971
Catalan	4947	Kazakh	5757	Sangho	6553	Wolof	6961
Chinese [CHI]	7254	Kinyarwanda	6469	Sanskrit	6547	Xhosa	7054
Corsican	4961	Kirghiz	5771	Scots Gaelic	5350	Yiddish	5655
Croatian	5464	Kirundi	6460	Serbian	6564	Yoruba	7161
Czech	4965	Korean [KOR]	5761	Serbo-Croatian	6554	Zulu	7267
Danish [DAN]	5047	Kurdish	5767	Sesotho	6566		
Dutch [DUT]	6058	L-N		Setswana	6660		
English [ENG]	5160	Laothian	5861	Shona	6560		
Esperanto	5161	Latin	5847	Sindhi	6550		
Estonian	5166	Latvian; Lettish	5868	Singhalese	6555		
F-H		Lingala	5860	Siswat	6565		
Faroese	5261	Lithuanian	5866	Slovak	6557		
Fiji	5256	Macedonian	5957	Slovenian	6558		
Finnish [FIN]	5255	Malagasy	5953	Somali	6561		
French [FRE]	5264	Malay	5965	Spanish [SPA]	5165		
Frisian	5271	Malayalam	5958	Sundanese	6567		

If you choose a Language that has a 3 letter language code, the code will be displayed every time you change the Audio or Subtitle language setting on pages 24 and 25. If you choose any other languages, '---' will be displayed instead. (3 letter language code is written in bracket.)

TROUBLESHOOTING GUIDE

If the VCR/DVD does not perform properly when operated as instructed in this Operation Manual, check the VCR/DVD, consulting the following checklist.

Problem	Solution
No power	–Check if the AC power cord is properly connected.
No picture	–Check if the TV is switched on. –Check if the cable is connected to the correct device. (See “Connecting to a TV or a stereo TV”)
Distorted picture	–Sometimes a small amount of picture distortion may appear. This is not a malfunction.
Completely distorted picture or black/white picture with DVD	–Connect VCR/DVD directly to the TV. –Make sure the disc is compatible with the VCR/DVD.
No sound or distorted sound	–Adjust the volume. –Check that the speakers are connected correctly. –Check if the cable is connected to the correct device. (See “Connecting to a TV or a stereo TV”)
No audio at digital output	–Check the digital connections. –Check if the audio format of the selected audio language matches your receiver capabilities.
No DTS audio at analogue output.	–Use a COAXIAL DIGITAL AUDIO OUT jack when outputting the DTS audio.
Picture freezes momentarily during playback	–Check the disc for fingerprints/scratches and clean with a soft cloth wiping from centre to edge.
Disc cannot be played	–Ensure the disc label is facing up. –Check if the disc is defective by trying another disc. –Handle a disc with special care so that it does not have fingerprints, scratches or dusts on its surface.
No return to start-up screen when disc is removed	–Reset the VCR/DVD by switching the VCR/DVD off, then on again.
The VCR/DVD does not respond to the remote control	–Aim the remote control directly at the sensor on the front of the VCR/DVD. –Reduce the distance to the VCR/DVD. –Replace the batteries in the remote control. –Re-insert the batteries with their polarities (+/– signs) as indicated.
Buttons do not work or VCR/DVD stops responding	–To completely reset the VCR/DVD, unplug the AC cord from the AC outlet for 5-10 seconds.
VCR/DVD does not respond to some operating commands during playback.	–Operations may not be permitted by the disc. Refer to the instructions of the disc.
VCR/DVD cannot not read CDs/DVDs	–Use a commonly available cleaning CD/DVD to clean the lens before sending the VCR/DVD for repair.
The VCR does not record a TV programme.	–Make sure the tape has a erase-prevention tab. –Make sure this VCR/DVD is in VCR mode.
The VCR does not perform a timer recording.	–Make sure the start and the stop recording times are set correctly. –Make sure the tape has a erase-prevention tab. –Make sure the clock is set. –This VCR/DVD may not perform or continue a timer recording if the power fails for more than 1 hour.
The motor rotates even when tape playback is stopped.	–To enable quick play mechanism, the motor will rotate for about 5 minutes. This is normal.
You cannot insert a tape.	–Insert a tape with window side up and the erase-prevention tab facing you. –Gently push the centre of the tape when putting into the cassette compartment.
You cannot remove a tape.	–Make sure the power plug is completely connected to a power outlet.

NOTES:

- Some functions are not available in specific modes, but this is not a malfunction. Read the description in this Operation Manual for details on correct operations.
- Playback from a desired track and random playback are not available during programme playback.
- Some functions are prohibited on some discs.

If you are unable to remedy a problem by following these hints, consult your dealer or service centre.

SPECIFICATIONS

PRODUCT TYPE

DVD Player with Video Cassette recorder

NUMBER OF VIDEO HEADS

4

VIDEO SIGNAL STANDARD

PAL/MESECAM colour system

AUDIO RECORDING SYSTEM

1 Stationary head for liner audio

2 Rotary heads for Hi-Fi stereo

CHANNEL COVERAGE

E2 - E69

TIMER BACKUP

60 minutes

DISCS (PLAYBACK COMPATIBILITY)

DVD Video / Audio CD / Video CD / CD-RW / R

DVD-RW / R, DVD+RW / R

FREQUENCY RESPONSE

DVD (linear sound) : 20 Hz to 20 kHz (sample rate: 48 kHz)

20 Hz to 44 kHz (sample rate: 96 kHz)

CD : 20 Hz to 20 kHz

SIGNAL-TO-NOISE RATIO (S/N RATIO)

CD : 110 dB (JEITA)

DYNAMIC RANGE

DVD (linear sound) : 90 dB

CD : 90 dB (JEITA)

TOTAL DISTORTION FACTOR

DVD : 1KHz 0.008% (JEITA)

CD : 1KHz 0.008% (JEITA)

WOW AND FLUTTER

Below the measurement limitation (+/-0.001% W PEAK) (JEITA)

CONNECTIONS

Front panel:

Video input RCA connector × 1

Audio input RCA connector × 2

Rear panel:

Audio/Video Output/Input 21-pin scart terminal × 2

S-Video output Mini DIN 4-pin jack (75 Ω)

Analog audio output RCA connector × 2 (one left channel, one right channel)
2 Vrms (47 kΩ)

Coaxial digital audio output One pin jack, 500mVpp (75 Ω)

POWER SOURCE

220-240 V ~ +/- 10%, 50Hz +/- 0.5%

POWER CONSUMPTION

30W (standby: 5W)

OPERATING TEMPERATURE

5°C to 40°C

DIMENSIONS

W: 435mm H: 94mm D: 233mm

WEIGHT

Approx 3.2kg

- Designs and specifications are subject to change without notice.
- If there is a discrepancy between languages, the default language will be English.

MAINTENANCE

PAL/MESECAM

- This unit can be played as MESECAM system when in MESECAM position. (See "Playback" section.)
- Playback a tape recorded with SECAM broadcasts in Middle East areas are possible on this unit.
- When a recorded tape with a SECAM-VHS appliance or a SECAM recorded tape is replayed with this appliance, black and white pictures are produced.
- This appliance cannot be used in France: a SECAM system appliance must be used instead.

Cleaning the Cabinet

- Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasives.

Cleaning Discs

- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the centre out. Do not wipe in a circular motion.
- Do not use solvents such as benzine, thinner, commercially available cleaners, detergent, abrasive cleaning agents or antistatic spray intended for analogue records.

Cleaning the disc lens

- If the VCR/DVD still does not perform properly when it is operated while referring to the relevant sections and to "TROUBLESHOOTING GUIDE" in this Operation Manual, the laser optical pickup unit may be dirty. Consult your dealer or an authorised Service Centre for inspection and cleaning of the laser optical pickup unit.

Disc Handling

- Use discs which have the following logos on them. (Optical audio digital discs.)



- Handle the discs so that fingerprints and dust do not adhere to the surfaces of the discs.
- Always store the disc in its protective case when it is not used.



Make your contribution to the environment!!!

- Used up batteries do not belong in the dust bin.
- You can dispose of them at a collection point for used up batteries or special waste. Contact your council for details

SHARP CORPORATION